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HINTS

ORIGINALLY INTENDED FOR

THE SMALL FARMERS

OF THE

COUNTY OF WEXFORD;

BUT SUITED TO THE CIRCUMSTANCES OF MANY PARTS
OF IRELAND.

BY

MR. MARTIN DOYLE.

*Published at the especial desire of the North and South Wexford
Agricultural Associations.*

FIFTH EDITION.

To which is added, Observations as to the expediency of cultivating
TOBACCO, with the details of its culture.

DUBLIN:
WILLIAM CURRY, JUN. AND CO.
9, UPPER SACKVILLE-STREET.

1830.

Price One Shilling.



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PREFACE TO THE FIRST EDITION.

Our various Essays upon Agriculture are often more suited to the taste of the *Gentleman Farmer*, than to the wants of the *practical Husbandman*; they are too expensive for the purse, and too learned for the unlettered mind of the humble peasant. It has been my object to supply such information as my own judgment and experience, *and the published observations* of much better Agriculturists, have suggested.

The Agricultural Societies of the County of Wexford, by their zeal and liberality, have already effected so great an improvement in the habits and practice of the Small Farmers of their County, that it gives me great pleasure to co-operate with them in promoting the comforts of that class, as well as gratification in extending to Farmers, on a greater scale, the information I have been able to collect.

MARTIN DOYLE.

Ballyorley,
August, 1828.

PREFACE TO THE FIFTH EDITION.

To my kind Countrymen and Readers.

When to my humble country neighbours,
I some time since address'd my labours,
Solicitous their state to mend,
And shew myself the poor man's friend—
(For clearly every skilful eye
Might several wants and errors spy;
Deficiencies with evil fraught—
The sad result of mind untaught,
And such as e'en a friend like me
Might hope to cure, in some degree)
When thus, I say, I first essayed
To write—to me a novel trade,
And dared in public print appear,
Tho' not, I own, without some fear;
I little thought my humble book
Would travel far beyond this nook,
Or that my lessons, widely spread,
In other regions, would be read;
Still less did Martin Doyle's ambition
E'er dream to see a FIFTH EDITION—
Clear proof that when a subject's fit,
Intention good may stand for wit;
And who employs an honest pen,
In service of his Countrymen—
Directing steadily his aim
To usefulness, not idle fame,
Will find that in their bosom reigns
A kindness far o'er pays his pains:
Then what more grateful can I do,
Dear Countrymen, for friends like you,
Than pray you every year may see
Increasing proofs of Industry;
And in your daily labours find
Health, competence, and peace of mind.—
So here—I make my homely bow;
God speed the Irish Farmer's plough.

MARTIN DOYLE.

Ballygarley, February, 1830.

ADVERTISEMENT.

The matter comprised in the following pages originally appeared in detached numbers in the Wexford Herald, the Editor of which respectable Paper prefixed to its insertion the following remark:—"Sensible as we are of the importance to Ireland of a simple and economical system of husbandry, and aware of the reluctance with which, habits familiarised by time, give place to improvements of less ancient standing, we accede with pleasure to the request of the writer of the following communication, and hope that his efforts to improve the condition, and increase the comforts of his humbler Countrymen, may be attended with success."

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TO THE
SMALL FARMERS OF THE COUNTY OF
WEXFORD.

No. I.

Hence let wise Farmers understand,
The need of draining swampy land;
The soil which too much wet has got,
Is worthless as the guzzling sot.

The first thing which you have to consider next to the rent, is the nature and condition of your land. If it be of prime quality, even at a smart rent, you are fortunate; your return will be good in proportion; but if wet, or dry hungry land, should fall to your share, *you must look sharp*, or you will find it hard to make the two ends of the year meet. If your land be wet, the wetness proceeds from one of the following causes:—

1. A close undersoil, or bottom, which prevents the surface water from soaking through it.
2. Land springs, bursting from the bowels of the earth, and wanting a free passage.
3. Water from higher lands oozing downwards.

The first case is, I think, the worst, especially if the ground be flat. One remedy is to *score* the land

with drains—the closer the better. These drains need not be more than from 2 to 3 feet in depth, and 12 or 16 inches in breadth at top, and 9 inches at bottom. They should be shored with flat stones, or filled with round stones or coarse gravel, (covered with bushes, straw, rushes or sods, with the grassy sides downwards,) and care should be taken not to throw the stiff yellow or bluish clay, you dig out, *over* the stones, else you will defeat your object, by hindering the water from trickling downwards. Ground of this kind, from the nature of the bottom, will never become perfectly sound, nor fit for working in winter, during which time (if in a broken state) it should be carefully ribbed up with spade and shovel, and when in lea, cattle should not be allowed to tread on it.

Another mode of cure (which I recommend in preference), is the following :

Take your spade and shovel, throw off all the loose earth, or upper soil, into rows 30 feet asunder, then shape the hard clay underneath, in the intermediate spaces, into ridges 4 feet high in the centre; work, in short, as if you were forming a road 30 feet in breadth, (only making your ridge much higher than if for that purpose,) and then spread the earth which you had removed equally over this new surface: by this treatment you will render your land *perfectly* dry at all times, which, with such an under-soil as I am supposing, cannot be the case in very wet seasons, even if with much draining; all the upper soil will be of uniform depth; and when once these ridges are thrown into this shape, they preserve it for ever.—It is true, that the side which may be exposed to the prevailing wind, and not open to the sun, will produce less luxuriantly than the sunny and sheltered side; but the total crop from a field so managed will be much greater than that in which there are much flatter ridges.

When wetness is caused by *springs* on flat ground, bursting upwards and requiring vent, cut drains (of

depth according to the depth of the springs,) in the best line for a fall, and if you happen to cut off the real or principal spring, which supplies all the others, they will speedily dry up. Skill and practice are much required in this branch of draining; but as long as a spring makes its appearance, you must cut it off. Since the object here is to carry off *under*, not surface water, you may throw in as much yellow clay over the stones in filling, as you please.

When the wetness arises from the oozing of water from *higher* land, you should cut a good head-drain between the wet and dry ground, of such depth, if practicable, as will cut off the communication; if the vein (or porous stratum) should not lie too deep, and if you can cut completely through it and reach a hard bottom, which will conduct the water along its channel, without suffering any of it to soak downwards, your work is done at once; but in general it is not easy to stop all communication in this way; you must therefore often proceed in a different manner, and if the springs appear in your field, *at different levels*, on a slanting surface, and (according to the season's wetness) continue to run at the bottom, while the higher ones are dry, it is plain that they are connected, and flow from the same point; in which case you are to draw your line of draining along the level of the lowermost springs, which will keep all the others dry.—But if you make your drain along the line of the highest of the spots where the water breaks forth, without being sufficiently deep to reach the level of those below, (which in a *steep* field cannot be done,) you would only carry away the overflowings of the spring, while the main spring still continuing to run, would wet all the land below the level of the bottom of the drain, by discharging itself *lower down* over the surface of the ground. When finishing your drains, give a very gradual fall, otherwise they will be choked from the earthly particles brought down by a rapid flow. I have only to add a

caution, that you should keep the outlets of all your drains clear, and scour the main drain whenever it requires it. Where stones are scarce, and tough sods plenty, sod draining in many cases will answer well; this operation proceeds quickly, and only requires a spade of a particular make. Wet land, when perfectly drained, becomes loose and productive; otherwise it is of very inferior value; if under grass, its herbage will be stunted and sour, and sheep fed upon it will take the rot. Immense portions of land in Ireland (besides the turf bogs) are half waste, from want of draining. Every day, idle families of men, women, and children, are to be seen, *who might be profitably employed* in cutting and filling drains. The man who has idle hands at home, and possesses an undrained field, deserves to be poor and miserable.

The opposite description of land is that which has a shingly or gravelly bottom; here the moisture escapes too fast; but, alas! you cannot remedy this deficiency; however, when I come to treat of cropping, I shall give you a few hints as to the best mode of farming on it.

No. II.

The soil with anxious skill prepare,
Or 'twill not recompense your care,
But with pernicious weeds be fraught,
Like *mind* neglected and untaught.

I shall now tell you how to prepare your land for cropping. The treatment must, in a great measure, depend upon the nature of your soil; if it be stiff and wet while it is in course of tillage, rib it up carefully in winter, and keep the furrows clear; if the land have a sudden fall, these furrows should be

run in a slanting direction, in order to prevent manure and earthly particles from being washed to the bottom by heavy rains. Clay land, if not treated in this way during the winter months, becomes hard and stiff in the month of March, or (if the weather then be wet) like mortar; in either case unfit for working: besides, in the succeeding summer, such land (from the previous neglect of ribbing, which would have loosened and pulverized the soil,) splits and exposes to the sun those tender roots and fibres which ought to be sheltered from it. Even if your land be light and dry, you should treat it as above, in order to preserve the manuring principles. In very small farms there is no excuse for neglect of this practice, particularly if the owner have two or three healthy sons.

Every one must be sensible that the practice of the garden is much better than that of the field, only a little more expensive; but this extra cost is scarcely felt by the small holder, who performs the work with his own family, (who might otherwise be idle) and the increased value of his crops, and improvement of his soil, will greatly repay the labour.

Strong clay land, if not properly loosened by spade or plough, besides preventing the vegetable roots from shooting out freely, hinders the genial warmth of spring from reaching those roots as it would in open soils; the mild rains too, as well as warm air of April and May, should have a free passage to the roots, which are, as it were, so many months through which the plants suck in their nourishment.—In stiff clay soil you can hardly trench or plough too deep.

Loose gravelly or shingly soils are also improved by deep digging; though for a different reason; the *bringing up of heavier clay*, and mixing it through the upper surface, gives solidity to the whole, and prevents moisture and manure from escaping too fast.

In treating of the preparation of the soil, ploughing is to be considered: although I write more for

the cottager, who should use spade and shovel in preference. The best ploughing is that which comes nearest to trenching, which *exposes the greatest quantity of fresh surface*; and the best plough is that which is most easily drawn. As to the depth, 4 inches may be considered light, 6 inches middling, and 9 inches deep ploughing. In general, the poor man's field is only *scratched*; fresh mould is rarely brought up; and this, as I have already hinted, is very important, in light soils, in which the essence of the manure is filtered downwards; it is therefore necessary, to bring it into action, by mixing the under with the upper soil.

Lea should be ploughed almost always for *oats* in the first instance. The sod should be so laid as to form an angle of 45 degrees (thus-V;) the harrowing covers the seed in the spaces between the furrow slices, and it comes up regularly in narrow drills.—The old, and still too general practice of *shovelling* lea corn is useless, where ploughing is perfect; but otherwise in every instance, it will be absolutely necessary. The sets in dry ground should be very wide, (7 yards in breadth;) in moist land, 3 yards where the Gloucestershire ridge (as described in the first number) is not formed, will be a good breadth for the ridge, and the harrow should be wide enough to cover the entire ridge at one stroke. I tried the experiment of covering some lea oats with a shovel last year; that which in the same field was only harrowed in, *though on a remarkably hungry soil*, yielded fully as much. When fallowing is resorted to, you should consider what your object is, which should be to *clear the ground from weeds, to mix top, middle, and bottom together, and to loosen the clay*; (for on clay lands alone should fallowing be thought of; and *even on these only in case of previous bad tillage and bad rotations*;) therefore, as is the practice in Scotland, you should give 4 or 5 good ploughings, besides frequent harrowings whenever weeds appear; and

afterwards, if possible, you should *manure* for *your wheat*.

Fields intended for summer fallows should be turned up in the preceding autumn, *immediately after removing the crop*, at which time also all *stubbles* should be turned in, and (after lying free from water during the winter, and while spring work is going on) ploughed during the succeeding summer, in the manner I have recommended. *By such a fallow*, weeds and insects are destroyed, and a single horse, with a common Irish plough, can open drills for the wheat with perfect ease; and all the succeeding crops will be clean. Now, my good friends, have any of *you* ever seen such a fallow?—Believe me it is much better than giving two scratchings, and turning cows, calves, horses, mules, asses, and pigs, to cut down the thistles, ragweed, docks, &c. &c. which should never be suffered to grow at all.

No. III.

Arrange your house in order due,
Your garden, gates, and fences, too;
Neglect's offensive, and what's worse,
It helps to make an empty purse.

The size of your fields should depend on the extent of your farm, the nature of your soil, and the sub soil, the rotations to be adopted, the number of ploughs, the slope of the ground, its being in pasture or tillage, and the nature of the climate. If you have a very large farm, you should have large fields—suppose from 15 to 25 acres—and the number is to be regulated by the rotation of crops which you intend to have. In a four-crop rotation, 4 or 8 fields will answer best; in a six-crop rotation, 6 or 12 divisions must be made—and these fields should be of equal

size. In cold and wet climates, and in pasture lands, the shelter of many enclosures is desirable; but in wet tillage countries, fields cannot be too open and airy for drying the land and saving the crops. The *shape* of the field, whether on large or small farms, should be square, or rather oblong square. In fields of the latter shape, there are in ploughing, the fewest turnings and shortest head-lands; but of all things (if you have any brains or eyes) do not make *crooked* ditches. The loss of labour in irregularly bounded fields is very great; it has been ascertained, that in square fields, five ploughs will do as much work as six, when the sides are unequal, and men's labour is probably lost in the same proportion. Short stitches (in IRISH, *geroges*,) should never be seen on a decent farm. Consider what a foolish thing it is to have one-tenth of your ground under great, wide, ugly ditches, straggling in every direction, and dividing your farms into *parkeens*, merely that you may have a bit of pasture for a horse, (who ought to be in stable) or some other equally bad reason; consider the waste of land for which you pay rent, tithe, and county cess. From small holders particularly, economy, in this point, would be expected; and yet it is with them, who can least afford the loss, that the greatest number of useless ditches are to be seen.—Again, are these banks sufficient security against trespassers? are they so well-faced with well-trimmed and close set thorns, as to afford shelter, or even ornament? No; they are generally crooked, and crumbling heaps of clay, occupying with their dykes, ten or twelve feet, without tree or bush, and so thinly covered with furze, that every stray beast who has the common use of its legs, may scramble over them at pleasure.

I am willing to admit, that a thick furze fence is most useful, even handsome, if clipped; and in bleak aspects, and mountainous soils, the very best that can be made; but if not close and regular, it gives an

appearance of artificial wildness, which is most unpleasant. I know that where other fuel is dear and scarce, the poor must have furze, or perish from cold; but in such case, thorns may stand in front, while furze have possession of the back of the ditch; and among the thorns, at the distance of three or four feet from each other, I would have you plant alternately, ash, oak, sycamore, and birch quicks. In moist places osiers and salallows would be most profitable—*cradle* making alone, in Ireland, causes a great demand for timber of this description. When these grow up among the others, they form a fine hedge-row, and become valuable to the planter, as well as creditable to his taste and judgment.

One word about planting your thorns: Get 4 year old plants if you can, and when making a new fence, do not take away the corn earth from the seat on which your plants are to be laid, for by so doing you rob them of their nourishment. There is no use in planting them if you take away their means of support. Now in dry lands (where open dykes are useless,) you need only throw up a spit or two of earth, two feet in breadth, to plant the thorns in. In this case, however, you cannot let your cattle enter on the ground until the hedge be full grown. If you are bent on pursuing the old grazing plan, of course the thorns can only be safe in the breast of a ditch with a wide trench, where they will take care of themselves. A dry wall, or hedge, such as I have above recommended, takes up about two feet in breadth. What a saving is here! In Scotland,* in parts of which, land is set to farmers for 6*l.* and 7*l.* per acre, these narrow low fences are general; the hedges there are trimmed and short, to prevent birds from lodging in them, and to permit the ripening of corn on the head-lands. Now, is it not grievous to see such waste of land—such ugly and extravagant fences, on almost every Irish farm? I cannot con-

* In Berwickshire and East Lothian.

trol or disguise my abomination of furze fences: if trimmed they become useless for fuel; if straggling, they are frightful—the very signs and tokens of bad taste and negligence.

So much for your field fences. I shall only now add a hint or two about gates and garden enclosures. How many fields are there in this county without a proper way of getting into them or out of them? Is it not shameful to see whole farms, belonging, perhaps, to men who could easily give one or two hundred pounds marriage portion with a favorite daughter, without a single field gate? gaps thrown down, gaps thrown up, or stopped with a cart (as need may require,) half a dozen times in the year; and all this trouble and expense to save five or six shillings!—Besides, when, on the high road, a gap is levelled, and the free course of water stopped, you run the chance of being fined for injuring the road. Put this into your account, along with the time lost in knocking down and making up gaps every year, and you will see that the balance is in favor of gates. As to the enclosing of your kitchen-gardens, (for I am willing to think that you will all have them) I must urge you to plant thickly round them: hollies, laurels, and other evergreens, as well as timber-sallows, &c. should here appear in abundance. A farm-house without its proper appendage of garden, (and orchard too) is a bleak, miserable looking thing. Above all, you will particularly oblige me by having your gardens in front of your houses, with your dunghills in the rere, near the sheds where the cattle stand.

No. IV.

Then banish first, the slattern's vice,
 Or vain is Martin's good advice,
 No more with dirt offend my sense,
 I can't with decency dispense—
 Be always clean, 'tis done with ease,
 Yourselves 'twill serve, your patrons please.
 And know all ye who want good wives,
 The lazy slattern never thrives.

Having concluded my last number with some hints about your garden fences, I shall now address you on the state of your houses, furniture, &c.

An Irish cabin, if it belongs to a very small holder, or mere labourer, is generally unfit to be seen; often without a chimney, smoking horribly of course, and rarely having more than one very small window, which will not open, with most uneven and crumbling walls, seldom uniformly dashed and white-washed, except in those places where active and anxious landlords reside; *personally* looking to the comforts of their thriving tenantry, and showing what *can* be done in Ireland.

In the barony of Forth, the houses are of a far better description as to size and accommodation, than any other farm houses which I have seen throughout Ireland. But the *dark* mud walls, though generally well built in that barony, and the *bawn* and dunghills in front, give them a very dirty and disgusting appearance. Now the encouragement which is held to all holders of ten acres and under, for neat cottages, by the two Farming Societies of this county, is quite sufficient, even if your own comfort was not intimately concerned, to induce you to be clean and neat; and yet in the barony of Forth, more especially, there has not hitherto been, I believe, a single application for a cottage premium. Why, one would almost

think that Hogs, if they could speak, would cry out for white washed, well roofed sties, if mere asking would obtain them. To what, then, is such indifference attributable there? Indeed, in every part of the county, unless in those favored spots where kind-hearted and valuable landlords *goad* their tenantry to improvement, the same carelessness, is too perceptible. Whence does this arise? From early habits of slovenliness and bad management, and often from poverty; from not possessing the means of purchasing lime for dashing, bricks for chimnies, and glass and timber for windows. Now, bad habits may be overcome by activity and example; "*I cannot do it,*" will never succeed, but "*I will try*" often conquers; and as to want of means, try the improved system of farming, and you will become independent and relatively rich, and well able to buy paint and windows at least. Besides, you are to remember that 15 cottage premiums are offered in every one of your baronies.—These are worth striving for. But do not suppose that mere *outside* white-washing and painting will satisfy me in any case. I must have a great deal more—perfect cleanliness *inside*—a well scrubbed dresser, level floor, dry and sanded, clean windows, well-aired bed-rooms, sweet and clean—no sluts' corners, no dirty bed-clothes. And *every day* these things must be so, or else you and I shall fall out; not merely on *show days*, when visitors are coming *with due notice*, to inspect for the premiums: and should you wish to see a *model* house for a *petty* farmer, take a walk to nurse M'Cabe's, or Pat Summers', at Castleboro:* to Tom Cooper's and Joe

* The seat of Robert Shapland Carew, Esq. M.P. whose tenants' cottages (considerable in number), with their gardens and orchards are not inferior in neatness to *any* of the same class in North or South Wales. Thanks to the *personal* and *unremitting care* of this gentleman and his benevolent and accomplished lady.

Mr. and Mrs. Blacker, of Woodbrook, are also models for the imitation of Irish gentry.

Deacon's, on Mr. Blacker's property in the barony of Bantry, or (which will be more convenient for the Forth and Bargy boys) to my friend John Mahony's cottage and garden at Taghmon; or to Peter French's at Bannow, where all the dashing and white-washing of farmers, and labourers' houses, in this county commenced, under the directions of Mr. Boyse, the principal proprietor; and you will see (or my name is not Doyle) what will *delight* you. Now, these peoples' houses, and many others on the same estates, are *always* clean inside and outside. By the way, since I have been abusing the *outsides* of your houses in Forth, I must admit that most of you are extremely neat and comfortable *inside*; and this is of infinitely more importance than the look of the exterior, if it *covers* filth and nastiness. Nothing is worse than a dirty house within. I would not throw away lime and sand upon those who are satisfied with the merely outward look, like Jenny Dempsey, who lives near me. But, probably, you don't know who Jenny Dempsey is; so it is but civil of me to inform you. She is a tenant's daughter of mine, who was married about four years ago to a man called "The Hurler." I gave them four acres of land at 1*l.* an acre, with a snug well-thatched cabin, besides a small cow-house, dairy, and pig-stye: (quite enough for the size of the farm) lime and sand for dashing, bricks for a chimney, cottage windows, that open and shut on hinges, and paint for them and the two doors—back and front, every thing was as nice as you please. When the Judges came to decide the Premiums, the windows were bright, the gravel walk without a weed, the cabbages fresh earthed in the little garden, the pig snug and clean in her stye, and the bees (every one of you should have hives,) swarming that very day; Jenny herself, and the children, as tidy as you can imagine, and "The Hurler" himself had the knees of his small-clothes actually buttoned and tied. Thinks I to myself, what a fine example to the rest of my tenants

this family will be! But I am very sorry to tell you that Jenny disappointed me after all. I went there about six weeks afterwards, and found the pig splashing and dashing the potato wash about the floor of the kitchen; six couple of chickens were picking up what he threw about: a goat was tearing the woodbine and roses that I had myself nailed on the front wall; and, what was worse, three panes of glass were knocked out, (I believe by that same rascally goat) and "The Hurler's" old breeches and his father's wig were clapped into their place, just to keep out the wind, and Jenny herself, instead of a tight bed gown, had a dirty night cap and a long draggled-tail gown, as black as the pot; to say nothing of the children, who looked as if they hadn't been troubled with comb or soap since the Judges had paid them the visit. "Oh! Jenny Dempsey," says I, what a sample of house-keeping you are after showing me this blessed day!"—Well, what was her excuse, do you think, for all this slovenliness and neglect? *She didn't expect me that day! if she knew that I was coming*, the dirty cap and the dirty long-tailed gown would have been off, and the children washed, and the pig in the sty, and the floor swept, and the windows mended, and the wig and the breeches decently hung upon the peg in the bed-room. This is precisely the kind of excuse which one-half of you would offer for every day filthiness; but believe me, tidiness will cost very little; method will keep all things together as they should be, if once properly set going.

This business of Jenny Dempsey has taken up more space than I intended, so that I can only add a request that you will keep your dwelling-houses, gardens and offices always in order, remembering the old story, "that for want of a nail, the shoe was lost, for want of a shoe the horse was lost, for want of a horse the rider was lost, being overtaken and slain by the enemy!" Be clean in your persons, ye *women* especially; tidily dressed like farmers' wives and

daughters; no dirty finery, no tawdry ribbons, and flounced gowns, with ringlets and curls, brooches, veils and silk handkerchiefs, aye and reticles too, as I have sometimes seen of a Sunday. These are as unsuitable to *you*, as dandy swallow-tailed coats are to farmers' sons. Every one of you belonging to a working farmer's family should dress according to your station and consistently with your circumstances; instead of aping the appearance of mantua-makers and shop-boys; a far less valuable class than your own.

No. V.

To enter well on house and lands,
 A fitting capital demands,
 Of prudence too, a proper spice,
 But void of griping avarice,
 Such as poor *Tim Delany* knew,
 Who chose the double portioned shrew.

After paying the necessary demands against you, there remains little or nothing for the support of your families. In winter, milk, so necessary to human life, is seldom within your reach; and meat is a luxury which never falls to your share, except on Christmas day and Easter Sunday. I have often seen a very large family picking delicately at one salt herring for dinner, the only addition to their potatoes; and even this relish not afforded every day, while the father of the family, rented from 10 to 20 acres of land! Now, though I admire the patience with which you can bear much real hardship, and many severe privations, I wish that you would feel a desire for comfort and independence, and perceive that *your want of these blessings proceeds from a defective system*

of farming, from general bad management, and from indifference to improvement. A supply of milk I shall yet prove to be within your power of providing; and surely some effort on your parts to obtain this necessary article for yourselves and children more especially (to whom salt fish is actually poison, causing scabby heads, and itch, and many other disorders,) may be reasonably expected from you. The want of milk in winter, where young children are concerned, is dreadful, of which I will give you a proof within my own knowledge. A young woman applied lately to a doctor for advice and medicine; her limbs were so weak that she could not walk ten yards; in fact, she was slightly paralytic. Well, the doctor gave her some bark, which was serving her much, and in about a fortnight's time she felt almost strong enough to kick a football about the bawn, if it happened to roll in her way; but unhappily she was nursing and it appeared that the medicine was drying up her milk, and starving her child; so she was desired to wean it; but, (here comes the point of the story,) she was unable to do so, because, though a small farmer's wife, she had not a milch cow in winter, therefore she is obliged to give up the physic, and defer the weaning until her cow shall have calved in May, and run the risque of being paralytic for life. And how old do you think the child is? fifteen months! A child fifteen months old, dragging the life out of a sickly mother from want of a little cow's milk! But then you'll turn about very short upon me, and say, "all this is very fine talk, Mr. Doyle, but how are we to feed a cow in winter when all the grass is eaten bare, so that she wont run dry? and supposing that we could feed her properly, how is a poor owner of a few acres to buy a cow at all? These are very proper questions for you, Mr. Pat, to ask me, and I hope to answer them to your satisfaction, only just allow me, for the credit of our country, to begin with the wrong end of your quere first, and to show how the

cow may be bought before we consider where the food is to be found.

Well then, sobriety, patient and unwearied industry, with great frugality, will, especially if practised in early life, generally enable a healthy labourer to accumulate *something*. When once the *nest egg* is laid, the commencement of property takes place, every month or week adds a *little* to the stock where great industry prevails;—I had two labourers, who were remarkable for unceasing assiduity: every spare minute they devoted to work for themselves, on very small patches of land attached to their houses; their wives were equally industrious at home, always at the spinning wheel; they soon saved money enough to stock small farms (about 3 acres each) and one of them gradually enlarging his holding as his capital increased, rents 30 acres of land, and is a very independent man. *Diligence and honesty* may operate in another way, by recommending the possessor to the notice of his landlord or employer, who, if he is a good and generous man, may advance what may be necessary to *set him up*, while the sloven and idler will never obtain credit. Putting a small sum monthly or weekly into a Saving's Bank, for which there is *Government Security*, is one of the most certain modes of creating capital; if every spare shilling, instead of being spent on tobacco or whiskey, or idle pastimes, were placed at interest, a very few years' thrift would raise a considerable increase; sixpences and shillings are generally spent unprofitably, even by those who would carefully hoard up a guinea; but guineas are made of sixpences and shillings, and the object and use of a Saving's Bank is to take care of your trifling sums until they become one large one. For instance, *two shillings* saved every week, will, without interest, amount in twenty years to one hundred and four pounds, twelve shillings; but *with the interest of only four in the hundred*, it will amount to *one hundred and fifty-seven pounds* in the same time—*Two shil-*

lings a week in five years, comes to twenty-eight pounds, three shillings and three pence.—*One shilling* a week in seven years, comes to *twenty pounds, ten shillings and eight pence*.

The Saving's Bank will take into safe keeping every sum you can keep together, above ten pence. When you deposit amounts to twelve shillings and six pence, it will bear interest, at the rate of four pounds in the hundred, which will be six pence for one year, or one halfpenny in the month; this interest you may add to what you have given before, and *receive interest upon it again*. Let every poor man think of the advantages which this plan proposes to him: in the Saving's Bank, his money may remain free from any danger; though his cabin may be robbed, or any other accident occur, what he deposits in the Bank is safe; but should he keep it with himself, even free from every chance, he will do so at a loss; a man may be pilfered, not only by thieves, and his own family, but by himself; for when a man gets a little matter of money together, he often says, "it will make little difference if I spend a small portion of it." So what he has scraped together, is thrown away in the public house. If his little savings had been laid up in a Saving's Bank, all this would have been avoided; the money could not be withdrawn just at the moment he wanted to drink, and when he became cool he would not wish to have it.

Let the poor man then lodge his money, whatever it may be, not in the hand of any private person, but in the *Saving's Bank* for *there* he may be sure it is safe, and whenever an opportunity occurs of using it with advantage, he can draw it out at a week's notice.

Take care before you take an inch of land to have suitable capital; have money in pocket, or you cannot get on; have enough to buy a cow and manure, at first starting, and two years rent lodged in safe hands, at interest, lest a bad year should come on you; do this, and there will be little doubt of your success, if you farm judiciously.

The importance of capital in every branch of industry is universally acknowledged, and in none is it more requisite than in farming; when there is any want *here*, the farmer cannot derive the full profit from his exertions, as he will often be necessarily obliged to sell his crops for less than their value, to procure ready money, and the want of capital again would prevent him from making advantageous purchases on favourable opportunities—if a farmer has not sufficient live stock to work his lands in the best manner, as well as to raise a sufficient quantity of manure, nor money to buy the articles required for the farm, he must live in poverty and hard labour, and the first unfavourable season will sink him under the weight of his burthens—when on the other hand, he farms *within* his capital he can embrace every favourable opportunity of buying when prices are low, and of selling when they are high. The *amount* of capital required must depend on circumstances, as, whether it is necessary to expend any sums in building or repairing the farm-house and offices, the condition of the farm at the commencement of the lease, and whether any sums are to be laid out in draining, enclosing, levelling, &c. whether it is necessary to purchase lime or other manure, and to what extent.

If you set up a huxter's shop, you must first have a little cash or credit, for buying crockery or whatever else you intend to deal in; but if you set up for a land holder, you don't think it so necessary to have a command of money; *the farm is to do every thing of itself*. So you commence with sowing corn, (which perhaps you buy on usurious credit) on some field, which your nearest neighbour persuades you is not entirely worn out, but will bring oats *any how*, instead of using such means as will bring it into heart again, and living for a year or two chiefly on your capital, or, if you get a really good field, you run it out from over cropping, and when it can yield no more, from want of manure, you are unable to pay the landlord, and are ruined.

Don't take an inch of land without the means of buying a cow, and of paying your rent—be content rather to work as labourers, in which capacity, if you act in the character of willing and honest workmen, you will be sure of a preference, and of being always employed.

But the fact is, that most young men think themselves old and wise, and rich enough to marry and farm, and having once got this foolish notion into their heads, it is next to impossible to drive it out again. To be sure, if they are very likely chaps, and happen to marry a wealthy widow, or a portioned girl, they may get on smoothly enough, and maintain a family comfortably, even on a very small farm; but the mistake is, that most young men overrate their means, and think that a very trifling sum qualifies them to marry and farm—nay, some are contented with having the mere marriage money, and trust to a good crop of potatoes for every contingency—(by the way, I dread next shrove-tide, the potatoes are now so plenty)—I wish that you had a little Scotch prudence in this particular; a Scotchman would as soon think of thrusting his calculating noddle into the fire, as of slipping it into the yoke of matrimony, until by patient industry he had acquired the means of supporting a wife and children. Now, I am very far from wishing to discourage you altogether from marriage, which “is honorable in all,” but I contend for this, that when you marry without the actual means of maintaining a family, you are doing wrong; because, in such case, you are bringing distress, and sorrow, and sickness upon your offspring: in short, I wish you to consider consequences. Marriage should be viewed as the reward of frugal industry—as the goal to which the poor man's desire should tend; but at the same time you should be taught to think, that it is a happiness beyond your reach, unless you render yourselves worthy of it. You have heard, I suppose, the story of Tim Delany, who having some capital, and wishing very prudently to encrease it by marriage

with a portioned wife, went to his landlord, and told him that he was undecided between two women, who were ready to marry him—one of them had four cows, and the other two; Tim admitted that one of the women was much better looking and tidier, and sweeter tempered than the other—but then *she* had only the two cows. The landlord and Tim settled the matter by deciding that there is not the value of two cows between any two women upon earth—so Tim took the ugly cross-grained woman with the four cows—and we may wish him joy of his luck.

I mention this not in praise of Tim's prudence in this respect—no, he was a cold, heartless, miserly scoundrel, who did not deserve happiness or prosperity, and I should be sorry to bring him up as an example. Prudence may be carried too far, and then it becomes criminal. But I have been running too far a-head, without telling the small holder *who has no money* how he is to buy a cow—he has a HORSE, I'll engage that, even if he has but half a dozen acres or even less—he has a horse—let him sell him—the horse must go—car, tackling and all—let him buy a cow and a *wheelbarrow*, instead. Now I have told you how to make off the cow—but before I tell you how to feed her all the year round, which in truth is my main object in addressing you, I must lecture you roundly in my next number, on the folly of keeping horses instead of cows on small farms, in order that you may see the propriety of either selling or shooting them.

No. VI.

Let little farmers mind their spades,
Nor think of keeping four-legged jades;
The proverb long ago decides,
Which way a mounted beggar rides.

I am within bounds, when I say that 100 Irish acres, if divided into 20 farms of 5 acres each, has to

maintain (besides 20 families) at least 20 horses, &c. If these horses be sufficiently fed, they will consume as follows :

From the 1st of October to the 1st of May, 1					
stone of boiled or steamed potatoes, at 3d.	£.	s.	d.		
per stone per day	0	0	3		
Fuel	0	0	1		
7lbs. of hay	0	0	1½		
7lbs. of oaten straw	0	0	1		
8lbs. of oats	0	0	5		
	0	0	11½		

Which for seven months amounts to	10	3	2
From the 1st of May to the 1st of October,			
one acre of clover or vetches	5	0	0
Value of a boy's labour, at 3d. per day, for			
300 days	3	15	0
Shoeing	0	10	0
Wear and tear of car and tackling	1	0	0
	20	8	2

Or, in other words, one horse will consume the	A.	R.	P.
produce of clover	1	0	0
Oats and straw	0	2	0
Potatoes	0	1	1
Hay	0	1	0
Straw for litter			
	2	0	0

In the above calculation, oats are valued at 10s. per barrel, potatoes at 5s. per barrel of 20 stone, hay at 2l. per ton, and straw at 13s. 4d. per ton.

With respect to potato feeding for horses, I recommend it from an experience of some years. My horses are old (one of them at least 20 years of age), but they are in high spirits and condition, from having, every evening after work, except during the soiling months, an abundant supply of boiled potatoes,

(warm) regularly given to them; but as the authority of T. C. Curwen, Esq. M.P. of Workington Hall, Cumberland, is infinitely more valuable than mine on this subject; I shall quote the following passages from his "Agricultural Hints:"—

"It requires from 5 to 6 hours for a horse to masticate a stone of hay, whilst he will eat a stone of potatoes in twenty minutes or less. The saving of four hours for rest, is alone sufficient to produce the greatest difference in the health and condition of the animal. After great fatigue also, a horse would be tempted to take warm food when he would not eat hay. I have at this time in my works, horses which were purchased six years ago of a farmer, who was selling off his stock as worn out, and of little value, and which are yet able to do their work with the best horses I have. I think there is little doubt of the life of this valuable animal, being considerably prolonged by this mode of feeding.....I have begun to mix an equal quantity of cut straw and potatoes; racks are according to this mode of feeding, as unnecessary as they are productive of waste, for to save trouble, they are always filled; and what is not eaten is so tainted with the breath of the animal as to be wasted."

If your horses be badly fed, they can only do half work; consequently half the time of ploughman and *driver* (if you foolishly employ one) is lost. But the matter is this: if you feed your horses as you should do, the cost will be 20l. 8s. 2d. for each; and if you half starve them, they will do little work and die prematurely. It is clear that, except, perhaps, on the sea side, where the drawing of sea-weed and sand may repay, or where horse labour on public works, &c. &c. can be constantly had; you should not keep a horse on a very small farm; *hire* a plough and harrow occasionally, (which may be got for a comparative trifle,) on small holdings; for unless there is a demand for horse labour in your neighbourhood, your cattle

are idle three parts of the year; and when they are employed at road or other work for two shillings a day what remains after feeding them, and allowing for your own time and labour in walking after them? just as much as will pay for their keeping, if they be kept properly. There is one mode of occupation, however, for your horses, which you on an average, contrive to have, fifty-two days in the year, and which, to say the truth, you industriously avail yourselves of—I mean attendance upon every fair and funeral that is within your neighbourhood—but I cannot see that any pleasure is to be derived from visiting fairs, unless you have more business at them, than merely buying a step for a spade, a handle for a flail, or nails for your brogues, which you can purchase at home; nor can I see the necessity of attending the funerals of those with whom you had neither relationship nor intimacy. And as far as your horses are concerned in these expeditions, I have but too often occasion to pity their sufferings, when I witness the abuse they undergo at funerals and fairs. How often do we see a drunken, unfeeling fellow, cruelly spurring, and at the same time reining in, the ill used animal, which has been for hours patiently starving at the door of a public house, while his brutal owner, insensible to his fatigue and hunger, has been guzzling punch or raw spirits, until he is hardly able to mount again. Now every one knows that working horses ought to be treated carefully and worked slowly, and that they should not be even trotted at their work; for one day's over driving is worse than a week's regular field work with suitable keeping—but, as if this were mere nonsense, the working horse besides being shamefully abused, as I have above stated, is often when unyoked from the plough or car, either rode home, or to a scanty pasture, at full gallop, by some untrained and unthinking imp. What a waste of food, which would otherwise go to market, or be consumed at home in rearing and fattening cattle for the butcher,

is caused by the numerous and supernumerary horses which small farmers are so anxious to have! The Secretary to the Farming Society of Ireland, in his able and most interesting report of the agriculture of Flanders, tells us that 8 horses perform the work of 200 acres on one farm there. Thirty or forty horses would be required on the same extent of land, if divided into small farms in Ireland—and we are to remember too, that those eight horses do at least twice as much work and twice as well as your thirty or forty horses. What hay and oats might be sold by many of you, which is unprofitably given to your long-legged, light bodied, and cat-ham-med cavalry! besides, your little capital is often sunk in the purchase of one of these animals, and if he dies from bad treatment or any other cause, your ruin is immediate, *as you conceive*; believe me the loss in this case would often prove a gain, if you would give up all thoughts of buying another.

I know a tradesman, holding a small farm which requires little horse labour—he can earn 2*s.* a day at his trade, whenever he pleases to work—yet this horse-madness has so bewitched him, that he keeps a horse, which he himself always leads or drives whenever this same animal is worked, although he could hire a horse, car and driver, for 2*s.* a day, and he loses his own wages of 2*s.* every day that he uses him, over and above the keep of the beast, who consumes, *or ought to consume*, if properly fed, the produce of two acres every year. Is not this positive madness; There is no milch cow, as you may conjecture during the winter months in the yard of this miscalculating tradesman,

Note—Farms too small to afford constant work to a pair of horses, brood mares, bullocks or heifers, and too large for spade husbandry, are the most unprofitable and inconvenient,

No. VII.

This number, if I do not err,
 Will great advantages confer :
 Of yore, ere stall fed beasts were known
 Fresh meat held *half* the year alone
 Now, every month a stock supplies,
 And hence, the farmer's profits rise.
 No cattle starve—no waste is found,
 Milk, meat, cheese, butter, all abound,
 And, smiling plenty to secure,
 Increasing dunghills give manure.

I proceed to show, that by soiling from May to August, and giving cabbages, mangel wurzel, and oaten straw, with a little hay during the remaining months, a milch cow may be kept the whole year on a very small portion of ground. For illustration, I will suppose a man to have only two acres; let him apportion it thus:—

				A.	R.	P.
Potatoes	~~~~	~~~~	~~~~	0	2	0
Oats	~~~~	~~~~	~~~~	0	2	0
Clover	~~~~	~~~~	~~~~	0	2	0
Cabbages	~~~~	~~~~	~~~~	0	0	20
Mangel Wurzel	~~~~	~~~~	~~~~	0	0	20
Kitchen Vegetables, Seedlings, &c.	~~~~		~~~~	0	0	20
Flax	~~~~	~~~~	~~~~	0	0	20
				2	0	0

If he can buy a cow at May, he at once begins to soil her with the clover of the cow house, and as part of this crop would be withered before the cow could consume it, 30 or 40 perches of it should be mown and saved for hay, not spread out at all but made in small cocks, which should be put together for the winter as soon as possible. I think that the half acre of clover (most of which will be cut for

her *green* food twice or three times,) will keep her until August, when the cabbages (of the large drum head kind) will be fit for use; afterwards the leaves of the mangel wurzel will be a most valuable kind of food untill the end of October, from which time its roots with the oaten straw and hay are to be used until the following May. The rejected clover, cabbage, and mangel wurzel leaves will support a pig, *and a sheep or two confined in a small yard*, or at the end of the clover season, tethered on the clover ley. According to this simple mode, a poor man may every year have half an acre of potatoes, and half an acre of oats, with carrots, parsnips and turnips, for the maintenance of his family, besides feeding a cow or two, (in which case one of them may be serviceable occasionally for car or plough,) which will give him milk and butter all the year round; a pig, and one or two sheep.—Let me fairly calculate the produce of the two acres:

40 bls. of Potatoes at 5s. per	~~~~	£10	0	0
6 bls. of Oats at 10s. per	~~~~	3	0	0
Milk, 6 quarts per day at 2d. for 365 days		18	5	0
Sheep and Pig	~~~~	3	0	0
Flax	~~~~	1	10	0
Bees	~~~~			
		<hr/> £35 15 0 <hr/>		

Deduct—

Loss on selling out a stripper and buying a new milch cow every year	~~~~	3	0	0
4 bls. seed potatoes	~~~~	1	0	0
7 stone of seed oats	~~~~	0	5	0
10 lbs. of seed clover	~~~~	0	9	0
Horse-hire	~~~~	1	10	0
Rent and taxes	~~~~	3	0	0
Mangel wurzel and garden seeds	~~~~	0	6	0
		<hr/> £9 10 0 <hr/>		

This leaves a surplus of 26*l.* 5*s.* as the clear annual value of the milk and crops, against which there is an offset of labour only, the greater part of which (as I have allowed 30*s.* for ploughing if it be preferred to spade work) can easily be performed by the women and children of the family who might otherwise be idle; while the man himself may be employed during the greatest part of the year, either at a trade (suppose weaving) or at common labour for hire on the public roads, &c. &c. This is the only plan by which a small occupier can have comfort and independence, and surely it is easy and practicable, and may be tried either on the above scale or on a larger or smaller one. Cobbett says, that a cow may be fed for a year on cabbages and Swedish turnips with a little straw, on about one rood of ground: if this be near the truth, there can be no difficulty in keeping one on an acre or two. I have already shewn that a horse will consume the produce of two acres, surely then if two acres will support a family of human beings with the luxury of milk and butter, and garden vegetables, besides affording flax and wool towards clothing, they are turned to the most advantageous account—besides, as I have already observed in different words, other sources of emolument to the occupier, arising from his labour, are not much interfered with, the farm from its small size not requiring a large proportion of his time. In the calculation above given, I have probably over estimated the crop of potatoes, and perhaps of oats also, for the first year or two; but after that time if the system be pursued regularly and exactly, a *greater* return (certainly of oats) may be expected—the ground will improve every year in richness and in tilth, consequently the crops will increase and the quantity required for seed decrease every year—wheat and barley may sometimes be substituted for oats, either for sale or for the use of the family; and either of these crops will be worth much more than I have taken credit for—the only

difficulty arises from the probable want of manure. I doubt if the contents of the cow house and pig sty will be sufficient for more than half an acre, and we have three quarters and twenty perches to manure. But if you cannot collect a sufficient quantity of rotten sods, road scrapings, or ashes, in addition to the other manure, (which should be taken from the cow house as fast as it is made, to be covered up with earth) you can very well afford from the profits of your milk and butter to buy a guinea's worth of lime, marl, dung, or even salt. Rushes, ferns, potato stalks (with salt to destroy the grubs of all kinds with which they abound) and weeds of all sorts before they seed, should of course be industriously collected for the cows' litter, as well as stubble straw, the pulling of which would amply repay the labour. Economy of manure is very important. If you could see a Chinese or a Flemish farm, you would blush for your mismanagement of manure, and waste of seed. With respect to flax, no working farmer should be without it; in the winter nights and wet days it keeps women and girls employed, and one yard of home-made is worth two, of bought linen. I have valued the produce of twenty perches of flax at 1*l.* 10*s.* this is too low as will be seen by the following calculation accurately made during two years by a lady, whose quiet and unobtrusive, yet steady and consistent exertions in promoting the happiness and comforts of the farmers around her, have long merited and obtained my warmest admiration.

(1823.)

Dr.	£. s. d.	Cr.	£. s. d.
To seed for half an acre		By 8st. 12lbs. of flax, at	
(52 potties at 6½ <i>d.</i> per -	1 8 2	12 <i>s.</i> 3 <i>d.</i> per -	5 6 9
To pulling, rippling, bog-		2st. (first quality) tow, at	
ging and spreading -	3 2 11	6 <i>s.</i> 5 <i>d.</i> per -	0 12 10
Scutching -	1 14 4½	9st. (second quality) at 5 <i>s.</i>	
Hackling -	1 2 11	3 <i>d.</i> per -	2 7 3
Hackler's diet -	0 8 6	5st. at 3 <i>s.</i> 6 <i>d.</i> per -	0 17 6
		200 pottles of seed at 6½ <i>d.</i>	
		per -	3 8 4
	<u>7 16 10½</u>		<u>14 12 8</u>

(1824.)

Dr.	£	s.	d.	Cr.	£	s.	d.
To 81 pottles for $\frac{3}{4}$ of an acre - - -	1	13	9	By 17st. 11 lbs. flax -	10	18	3
Carriage from Dublin -	0	6	8	7st. tow, at 6s. 5d. per -	2	4	11
Pulling, bogging, and binding - - -	1	0	0	16st. ditto, at 5s. 3d. per	4	4	0
Horse hire, spreading, &c. -	2	13	0	13st. ditto, at 3s. 6d. per	2	5	6
Scutching - - -	3	14	6				
Hackling - - -	2	8	4	Seed blasted	19	12	8
Hackler's diet, candles, &c. -	0	17	8				
	12	12	0				

Now if half an acre of flax afforded to this lady (who was probably cheated a little in every stage of the process) a profit of 6*l.* 15*s.* 8*d.* after paying the highest penny for labour, *you* would make a great deal more by the same crop, particularly as *you* would not have to hire hands for spreading, &c. &c. which cost the lady about half of the money.

In my next, I shall probably enter more at large into the soiling system, which holds out incalculable advantages, and without which, farming on any scale, is miserably bad.

No. VIII.

This follows up the plan in contemplation,
And will, I hope, engage your imitation.

In order to give you a just notion of the great profit which attends the soiling system, I shall now furnish the details of an experiment accurately made on an Irish acre of red clover, the soil being a poor clay:

	Tons.	Cwt.	lbs.	£	s.	d.
7 milch cows fed during 28 days, on the 1st cutting, 12st. each per day, at 1d. per stone - - -	14	14	0	9	16	0
7 do. do. 27 do. 2d. do. do. do. -	14	3	4	9	9	0
7 do. do. 9 do. 3d. do. do. do. -	4	14	4	3	3	0
	33	11	8	£22	8	0

Besides the great value of the manure which cows so fed and well littered, must produce.—Manure makes the farmer's wealth, and yet from mismanagement of this important article the greatest loss is frequently sustained; in hot weather particularly, there is a great waste of dung from the injudicious habit of leaving cattle in the fields, where gad fly and heat drive them to madness unless they can find the cool security of a river or pool, in which they will *unprofitably* stand for hours.

I prefer red clover to vetches, but if you cannot have the former, as will happen when you are first entering on an* ill managed farm, sow vetches (which you can buy for about 2s. a stone) at the rate of 3 bushels to the acre, if sown broadcast—by being carried to the cow house or stable where litter should be plentifully supplied, cattle are made to contribute to their own support, by making the manure for succeeding crops. The quantity of clover seed necessary for an Irish acre is, from 1½st. to 2st. but when ground is perfectly clean by a regular course of drilled green crops, as in Flanders, 10lbs. will answer. If any of *you*, however, try this quantity, your crop will be miserably thin, because your ground is so abominably dirty. It is only in land repeatedly ploughed and well manured, in which no weed is suffered to exist, that this wonderful saving of seed can be attempted. The clover plant in such land will tiller uninterruptedly and possess itself of the whole surface. Every one of you should save a little of the seed from the second crop; if part of the first crop be cut in May or June, the second will be ripe in September, which in Ireland is generally a dry month. In truth no man without clover for summer feeding should presume to call himself a farmer at all. Is grazing to be put in compe-

* In exhausted or very light lands sow grey pease for soiling—they will flourish to a certainty where other crops would fail.

tition with soiling in the cow-house? I think you will admit that it is not, since an acre of even good pasture will feed only one cow from May to November, and an acre of clover will support at least three cows during the same period. To say nothing of the grand point, the manure, how much better is it for you to have this in your farm yard, than to travel 10 or 20 miles a day during summer for lime or marl at a tremendous cost? But clover fed on the field is comparatively of little value. A parcel of unprofitable horses and miserable heifers turned on it when half grown! what provoking waste! I have not taken into calculation the profit which store pigs fed entirely on clover or vetches will afford—it is, however, very great, particularly if you can give them at the same time a small quantity of buttermilk—even the rinsings of the milk vessels with clover, vetches, or lucerne, will keep them in high order. By the way I must say a word or two in favour of lucerne and sainfoin which give valuable soiling. Both of these should be sown in remarkably clean ground and without any other crop, in drills (about 10 inches apart) in order that they may be kept free from intruding weeds or grasses: they are tap-rooted and require a loose and dry undersoil (limestone gravel or chalk is the best,) they both remain about 15 years in the ground, and bear transplanting well; if the surface, however, be not kept loose and clean, these excellent herbage crops will be hurt considerably before they arrive at perfection. The plants of Lucerne; when cultivated by transplantation, should be 6 inches asunder. If the seed be sown in April, the plants may be put out in September: 4 cuttings of lucern may be expected every year. Sainfoin is to be treated in the same way, it is also suited to the same kind of soil; a wet bottom would ruin either, though they will flourish on light land if dry and warm. If cut early, it will, probably, yield a second crop; an acre will feed four cows from the 1st of April to the end of November,

and afford a good deal of hay besides. However, as both these crops require a dry climate, much weeding, and a peculiar soil, and do not arrive speedily at perfection, *clover is preferable*; besides the rotation of crops would be broken in some degree by cultivating them; however, in a small detached paddock, one or other of these grasses, for very early cutting, may be desirable for young or sick animals. Indeed, unless the soil is light, dry and loose, inclining to sand, with the sub-soil little inferior to the surface, it would be vain to cultivate lucern, though sainfoin may succeed on any loose bottom.

No. IX.

Here learn what skill and care for others do,
And let their good example profit you.

I omitted to state in my last number that clover ought to be given in very small quantities at a time, and always cut some hours before it is used, in order that the fixed air may escape from the stalks—"Prevention is better than remedy;" it is wiser to guard against the entrance of this air into your cow's stomach, than to depend upon an instrument for letting it out of it in order to save her from bursting. If the soiling system in summer, with green crop feeding in winter, were in general use among you, in a climate so favourable from its mildness and moisture, as our's is, to herbage crops, and turnips, and mangel wurzel, and so frequently unfavourable to wheat and barley, I should have no doubt of your rapidly rising in the scale of comfort. Your rents, and taxes too, are considerably lower than in England, Scotland or Flanders, and the price of labour here, is much lower than in those countries; and yet too many of you are

miserably poor, and *all* of you incalculably less comfortable than you might be. I have already told you, that large farmers (holding from 100 to 1000 acres,) * *in particular parts* of Scotland pay from 6*l.* to 8*l.* per Scotch acre, which is a good deal smaller than ours. How do they contrive to pay these enormous rents, when ten barrels of wheat (now worth only 25 shillings a barrel) is probably above the average of that crop on the Scotch acre, and their barley crops are greatly inferior to those which are grown in my pet parish of Carne—how, I ask, is even 6*l.* per acre, all round, to be paid, where every male workman costs the farmer 30*l.* a year? By not depending at all on corn for the rent; by growing clover and turnips for cattle feeding, which enables them every year to manure one-fourth of their extensive farms, without sending 10 or 20 miles for lime, at a desperate expense, as my neighbours are in the practice of doing. Crops of wheat alone could not enable the Scotch farmer to pay his rent at the ordinary price of that grain, but a due proportion of turnips will make up amply for the deficiency—after which comes an enormous corn crop laid down with clover: 20*l.* is often cleared there, by a single fat cow or bullock. Now why cannot you, on a small scale, turn your farms to this profitable course of husbandry, and feed one, two, or more milch or fattening cows, which will encrease the productiveness of your land, and answer much better than forcing successive crops of corn, which impoverish it so wofully that, at last, labour and seed are thrown fruitlessly away.

Be independent in a great measure of corn markets: consume the produce of your farms at home. Milk, and butter, and a fat cow, sheep and pigs will pay

* East Lothian and Berwickshire, for instance—I am far, however, from asserting that such rents are in many places paid, and in such cases, houses, offices, &c. are kept in repair by the landlord; in the *present* state of the markets such rents could not be paid any where.

you much better, with less labour, than middling crops of corn, on the smallest holdings, as well as on the largest. You can pursue a good system on the minutest scale, although on a large one you can do so with the greatest profit.—One fourth of your land you should have under potatoes, mangel wurzel, beans, or turnips—one fourth, barley or oats—one fourth, clover, vetches, or lucerne—and the remaining fourth, wheat, if the soil be suited to it. *I do not allow you, on very small holdings, a single perch of pasture.* Bring your farms once into the above system, and they will ever after be easily kept in order with little extraordinary cost. But you will cry out, and say, “the cow will not give half her quantity of milk if confined in a house”—“pasture is the thing.” I admit readily that a single cow will yield more milk in mild weather when at liberty on good pasture; *but* the same quantity of land will, under the green crop system, support a much greater number of cows, and on the average of the year, supply a much greater quantity of milk: you will see this by considering that one acre of pasture will scarcely feed a cow *during the summer months alone*; but if it be chiefly under green crops, it supports her much better *during the whole year*, and though she will give less milk during a part of the year, she will give much more on the average of the 12 months. Divide the acre, if you have but one, into four parts, thus:—

Mangel Wurzel, or Turnips, Cabbages, and						A.	R.	P.
Garden Roots	-	-	-	-	-	0	1	0
Barley	-	-	-	-	-	0	1	0
Clover	-	-	-	-	-	0	1	0
Wheat	-	-	-	-	-	0	1	0
						1	0	0

The quarter of an acre of clover and mangel wurzel, with the straw, and $1\frac{1}{2}$ ton of bought hay will keep up the cow for a year, and leave three or four barrels

of barley, and two or three barrels of wheat to pay the expenses of rent, &c.

According to this plan an acre of land would soon become prodigiously fertile, because all the manure made during twelve months is applied to one-fourth of an acre. Every one of the four crops after a few years would be great beyond your conception; the fact is, that "*much food is in the tillage of the poor, but there is that is destroyed for want of judgment.*"—Prov. xiii. 23.

Cabbages are a very valuable description of green food for cows throughout the whole year, of which, crops succeeding at regular intervals, can easily be obtained—the *early york* and *sugar loaf kinds when young*, give no unpleasant taste to milk or butter—in order to raise a stock that shall come forward very early in spring, prepare a perch of ground in August, manure this well with short dung, and sow half of it with early york, and the other half with sugar loaf cabbages, in little drills, three inches apart, the seeds thin in the drill—the plants should be thinned if nearer than two inches: as soon as the seeds are up, hoe deeply between the rows, and again in a few days, for the more you hoe or dig about the cabbages the better. When the plants shall have attained six leaves, dig up, manure, and make fine another perch or two, prick out the plants in rows, 8 inches apart, and 3 inches in the row, hoe the ground between them often, and they will grow up strait and strong. Early in November lay some manure between the ridges in the ground intended for the full crop, and turn the ridges over on this manure, then transplant your cabbages on the ridges which cover the manure at fifteen inches apart—here they are to stand for the winter; watch the slugs, and if any plants fail, supply their places from the bed. If the winter be hard, cover the seedling beds at least, with a little straw or fern laid between the rows and the plants, so as not to cover the leaves—if the ground becomes hard in winter, hoe it.

and particularly near the plants. In March, hoe or dig deep, and as soon as the plants begin to grow, dig the ground with a spade clean and well, going as near the plants as possible, without displacing them: dig again in April, hoe well, and destroy all weeds—about the first of June there will be cabbages. The early yorks will soon become solid, and will furnish food for cows and sheep until some time in September. In the following March and April sow more early yorks, proceeding as before directed—dig up and manure the ground, and as fast as you cut cabbages, plant cabbages—the last planting should be about the middle of August, with stout plants: these will serve until November.

When cabbages are planted out in autumn, put first a row of early yorks, then a row of sugar loaves, and so on throughout the whole piece. As the early yorks come first, you will, of course, cut every other row, and the early yorks which you are to plant in the summer, will go in the intervals, as the sugar loaves are cut away; put Swedish turnips in their place, the ground being dug and manured, as in the case of the cabbages; the turnips should stand in rows, two feet apart, and always a foot apart in the row.

To save cabbage seed, select a few fine specimens, and plant them by themselves, out of the reach of the effects of the blossoms of other plants of the cabbage tribe; for bees carry the farina from plant to plant, and thus adulterate the seed. But cabbages, though *good*, are, perhaps, the worst green food for milch cows, as they give a bad taste to milk and butter, if old, tainted, or even used in great quantities exclusively; and *this is* a **STRONG** objection to their general use.

No. X.

Potato! Oh the very name
 My humble Muse inspires;
 To do full justice to its claim
 Might ask old Ossian's fires—
 But in his songs it would be hard
 Potatoes praise to find,
 For why? when flourished that great Bard
 On different fare they dined.
 Their food was by the chace obtained
 Or sought in mutual plunder,
 And thus eternal warfare reigned—
 In truth it was no wonder.
 Now Pat can with his kinsfolk cry
 "What happier days await us
 "With friends, who arts of peace supply
 "And fields that bear potatoes."
 The purpose then of Martin Doyle
 Who farming boasts some art in,
 Is how to meliorate the soil
 And make that crop more certain.

Having recommended to you a certain rotation of—1. green crops, (viz. potatoes, mangel wurzel, turnips, beans, &c.)—2. barley or oats,—3. clover,—4. wheat, I shall proceed to give you a few simple directions for the culture of all and each of the above crops. I shall begin with *potatoes* for which Ireland is so deservedly celebrated. In this county the *drill* management of them being so universal, I have only to call your observation to the following two or three points affecting their luxuriance—1st, as to seed: cut off the crown or principal eye from your *best* potatoes; by doing so you will have the earliest and best sets, and at the same time check the vegetation of your store potatoes, either in house or in pits; and you will scarcely miss the quantity of seed by this thrifty mode. You are not, however, to carry your economy so far as to cut off the mere crown eyes without a

sufficient portion of the potato attached, because it is well known that the strength of the shoot depends on the power and vigour of the set. The set should not be less than the fourth part of a well sized potato. It is a great mistake to choose for seed those potatoes which are considered too small for eating. Cut the seed some days before it is planted, that the wounds may dry up; you may even cut your seed some weeks beforehand, provided that the sets are not exposed to dry winds or any drought so as to deprive them of their moisture. The excellence of the crop will depend however, principally, on the culture, the season, and the situation.

The season for planting depends on the state of weather and soil: if they be favourable plant from the middle of April to the middle of May—late crops are seldom so abundant as early ones. There is a method of cutting the potato or seed, practised by Mr. Hugh Williams, of Bodelwydden, in North Wales, by which the crop may be made to come to perfection two or three weeks earlier than by the usual method. The principle is that of rejecting the lower part of the potato, and merely using the upper part or crown, cut not horizontally but longitudinally. This method in most potatoes will furnish three wholesome sets—and may be relied on for an earlier produce.

In order to have potatoes remarkably early, an early sort is to be chosen—and if planted in the usual time, they should be dug out in the month of August, and spread in the sun upon a dry gravel walk for some days till perfectly dry and seasoned, preserving them from the rain or dew of the night. They should then be stored upon a dry loft, and planted very early, cutting them longitudinally, in the manner before mentioned.

The best seed (for most soils) is had from the mountain moors, and it has been proved that the *curl* will never be found in those potatoes, because this is

produced either from over-ripening, or from age and excessive bearing. Now, if the *curl* proceeds from over ripening, *mountain seed* will be safe from this disease, because vegetation on elevated grounds will be sooner stopped by frost than in low situations—it follows, therefore, that potatoes for seed should be planted late. And to prevent the ill effects of age, *frequent change of seed* is most necessary; and fresh seed should be procured from potatoes that have been planted on a *different soil*, as, from poor to rich, and from clay to sand lands. The coarser the potato, the less liable to disease, it will stand longer upon the same lands without change and without renewing the seed.—The varieties of potatoes are endless, as you will find by raising every year from *seed*, which is produced from the fruit of the flowers.

As to the mode of applying manure for your potatoes, I think it should be laid *under* the potato, particularly in wet lands, because, by so doing you raise the roots above the level of the furrows at each side of the drills, and of course preserve them from rotting at the end of a wet season. In very *dry* soils, where the moisture escape *too fast*, compost, such as that of lime and clay, may perhaps be more advantageously thrown *over* the seed. *Ground which has been recently limed even in a very light degree, will, with the addition of dung, produce the largest and best crops of potatoes.*

The manner of moulding potatoes should be as follows:—As soon as the stems are three or four inches over ground, an exposing plough should be run as closely as possible to the roots, in order to loosen the clay which it throws from them into the middle of the furrows. After this operation, weeding is executed quickly and effectually, either by the hand or by a garden hoe. After the weeds become withered, draw a scuffler, or small harrow, through the furrows, in order to pulverize and clean the earth before it is again thrown up to the plants. The next moulding

is to be in the usual way, without again stripping their sides. Choking up with hard clay an unlucky crop of potatoes, immediately after popping their tender shoots heads over ground, instead of loosening the clay, as I have just described, in order to let the fibres strike freely, is very injudicious. The small holder who moulds with a spade and shovel should take equal care to loosen the earth about the potatoes in every direction before he moulds them. *One of the principal objects in drilling green crops, is to clean and pulverize the land completely, to afford it all the advantages of a fallow while it is yielding a valuable crop.* As to taking out the potatoes, I shall merely recommend, in *loose dry land*, the plan of running a double mould board plough (without a coulter) through the centre of each drill under the level of the potatoes, which, being thrown out right and left at one operation, can be easily raked together, or collected with prongs flattened at the ends.

Upon *strong lands* profit is considered to arise from dropping a bean between every set of the potatoes; a crop it is said may be raised in this way without injury to the potatoes, and without any expense except the small quantity of seed, but I do not give this as certain.

No. XI.

This section introduces to your notice
A plant, whose name uncouth to English throat is,
From *Germany* the *Mangel Wurzel* came,
And well deserves its widely spreading fame.

Mangel Wurzel comes next to be considered, and as Mr. Meadows has given you the fullest information with regard to the culture and properties of this

valuable green crop, in a Pamphlet which now lies before me, I shall beg leave to make such use of it as suits my present purpose.

Mangel Wurzel is a kind of *red beet*, not liable to be injured by disease or insects, and proof against the change of seasons. In strong clay or any *light shingly* soils, it will however be a very inferior crop. It requires loamy loose soil, and abundance of short and rich manure. It gives no unpleasant taste to milk or butter, (an objection which may be urged against turnips and most kinds of cabbage)—quite the reverse. Pigs as well as milch cows are fond both of its leaves and roots. Sixteen or twenty perches under it, will support a cow, allowing her sixty pounds weight per day, for the five winter months; and half a pound of seed, which will cost about 1s. 6d., will sow these 20 perches. From the 20th to the end of April, is the best time for sowing the seed; and those of you who are not likely to have your ground at that time ready, should sow in a seedling bed, in order to transplant when the ground is prepared; and in this case you should not put out the plants until they are about an inch in diameter, else they will not arrive at full size. The best way, however, is to sow the seed where it is to remain, and the process is as follows:—

Prepare your land as if for drilling potatoes—open the drills eighteen inches or two feet distant, the deeper the better, unless there is yellow clay at bottom—fill them with short manure—cover them with four or five inches of earth—roll them lengthways, and then on the smooth and level top make holes with a dibbling stick, two inches in depth and about twelve inches apart, and into every hole drop two seeds, which are to be covered as the work proceeds. When the plants are about two inches high, you are to draw out from each hole the extra plant or plants, leaving of course the strongest and healthiest plant behind. Keep them clear from weeds, but do not earth them.

If any of the plants appear to run to seed, pull them out, and transplant into their room, after stirring up the earth, and applying a little fresh manure, (*and to the want of attention to this point the comparative failure of transplanted crops is to be attributed*) other plants of mangel wurzel, rape, cabbages, or Swedish turnips, which should always be in a reserved seedling bed, in case of failure in any crop. In September *pull* the leaves—(*cutting* them close to the crown will cause the root to rot if left in the field during the winter)—and give them to your cows, sheep and pigs. You will also find that they make a good substitute for greens or *spinach*.

The following is Mr. Meadowe's calculation of produce:—

Drills 2 feet distant,	}	220 plants per perch—23,280 per acre.
Plants 1 foot distant,		
Drills 2 feet distant,	}	147 plants per perch—23,580 per acre.
Plants 18 inches distant,		
Drills 18 inches distant,	}	294 plants per perch—47,040 per acre.
Plants 1 foot distant,		
Drills 18 inches distant,	}	252 plants per perch—40,320 per acre.
Plants 14 inches distant,		
Drills 18 inches distant,	}	196 plants per perch—31,360 per acre.
Plants 18 inches distant,		

You may safely calculate on 30,000 plants per acre. If you average the plants at 3lbs. each, which is much too low, you will have 90,000lbs. or about 40 tons, not a watery substance like turnips, but a firm nutritious food. We are not however to count too much upon those singular productions. It is always more satisfactory to have the certified result of a fair and more extended experiment.—The Earl of Courtown, a resident nobleman, who lives amongst his tenantry, to furnish them with every example in agriculture that can promote their interests, and their industry, and is in every point of view a *most valuable proprietor and most effective country gentleman*, has obligingly furnished me with the following statement

of his Mangel Wurzel crop of this year, accurately proved to determine a wager between his Lordship and Abel Ram, Esq.

	Tons.	Cwt.	Qrs.	lbs.
10 Perches weighed	0	8	0	4
Or one acre	56	14	0	0

Roots, cleaned and freed from tops—the total quantity which his Lordship had, was 69 tons 2 cwt. on one acre and thirty-five perches.

This not only evinces the great superiority of this crop over turnips or potatoes, but the *desirable emulation*, in consequence of which the detail has been thus made public.

Suppose that an acre of ground, manured as highly as that for Mangel Wurzel, would produce 100 barrels of potatoes—this is, no more than $12\frac{1}{2}$ tons—the expense of the latter crop is very material; of the former, very trifling. Forty tons of Mangel Wurzel will support 12 cows during four months, allowing 60lbs. to each cow per day. The manure made by these cows will be of infinitely more benefit than that produced from animals fed on mere straw or hay; and this fact alone is a strong argument in favour of green food; it demands your serious attention. For all this useful information you are indebted to Mr. Meadowe's, who will shew you his practice at Hermitage,* (the neatest and best tilled farm, on a *small* scale, in the County of Wexford) I have only to add that, in my opinion, he might have taken an average of 6lbs. each root, or 80 tons on any acre which is able to yield 100 barrels of potatoes. And in this opinion I am

* *Wells*, the extensive demesne of Robert Doyne, Esq. exhibits, in the same county, the most perfect system of agriculture on a *large* scale: the fields on that farm are laid out with mathematical precision, all the fences are preserved and trimmed with English exactness, and the implements of husbandry, cattle, &c. &c. are of the best description.

in some degree fortified, from having heard that *one extraordinary root* of Mangel Wurzel, grown by John Brownrigg, Esq. and exhibited last October at Camolin, weighed $26\frac{1}{2}$ lbs. *without leaf or fibre*. When giving the roots to your cattle, wash them, cut off the fibres, give them one or two chops with a spade or shovel, and occasionally sprinkle salt on them.

No. XII.

Wealth to the *turnip*, BRITISH farmers owe,
 Tho' *here* too few its real value know,
 Then *countrymen*, adopt what I advise
 And grow, like British farmers, rich and wise.

Valuable as *Mangel Wurzel*, on good loamy land unquestionably is, I *should be much better pleased to see a general introduction of turnip crops among you*, because a vast proportion of our soil is unsuited to the former, though certain of producing the latter in abundance. I have seen good turnip crops sown without fresh manure, where Mangel Wurzel had previously failed. The light sandy soil of this hilly county, under the present system of farming, is of little value to landlord or tenant; but if sown with turnips it would be far otherwise. The soil of Norfolk (in England) is naturally as bad as any townland in this county; but the universal prevalence of turnip husbandry in regular rotation, has rendered the one highly fertile, while the total neglect of it in the other, leaves it comparatively barren.

Turnips delight in a loose soil; there they can be raised to the greatest perfection, and with the least hazard of miscarrying; at the same time there is no soil that will not bear turnips when well prepared and *manured*; reclaimed moors, with the ashes of the

burnt surface, yield fine crops of them. No person ever deserved better of a country than he who first cultivated turnips in the field—no plant is better suited to Ireland—no plant prospers better in the coldest and wettest parts of it, and no plant contributes more to fertility. The Norfolk farmers generally raise the white or red, and the green topped turnips which grow to a very large size, but the roots become hard and stringy early in spring. The green-topped turnip growing more above ground is in more danger of suffering from frosts than the other two kinds, which are more than half covered by the soil, but it is the softest and sweetest, when grown large, of any kind, except, perhaps, the yellow Aberdeen, which is a hardy and delicious turnip. Swedes are much better for keeping, (they will be good so late as in June,) and more nutritious, but they require a rich soil, and abundant manure. Sow all kinds from a drill barrow in drills, prepared as for mangel wurzel, at thirty inches apart; the barrow usually sows two drills at once, and is drawn by one horse, or by a man; it has two rollers, one that goes before the sowing apparatus and levels the pointed tops of the ridges, and another that follows for the purpose of compressing the soil and covering the seed. The time for sowing the different varieties is somewhat different; the Swedish should be put in the earliest, and then the yellow, both of them in the month of May, but the globe kinds should not be grown until June, and after the first week of July a full crop cannot be expected. You may continue to sow your latest crop after vetches. Rape seed also may be advantageously sown after vetches, for spring feeding, after which a corn crop should succeed. If you are in want of room, and if you have not a drill barrow, you can make a little furrow either with a pointed stick or hoe, on the top of each drill, into which with the hand you can deposit the seed.

After the turnips have thrown out their rough

leaves, run an exposing plough between the ridges as in the culture of potatoes, and cut up the weeds at each side, almost close to the plants, cleaning out the bottom of the interval, at the same time; the hand hoers are then to be set to work as soon as possible after, and the plants are to be left about nine inches separate. Nor need you be afraid of stripping the turnips too much, for they require much exposure; in dry soils they should not be earthed up again, but I believe that whenever they are to be left out during the entire winter, which in this mild climate may generally be done, it will be necessary to throw back the earth from the furrows after the second hoeing, in order to drain off the surface water; and in wet land, this process is evidently necessary. The spreading of dung, hand hoeing, and gathering of weeds can always be done by women, boys, and girls.

During severe frosts, turnips become so hard that no animal is able to bite them; therefore, in frosty weather, those which are intended for next day's use should either be laid in the cow house, where the warmth will thaw them, or put into running water, which effectually softens them; but the best way, except in very open weather, is to have a few days consumption in the barn, you can preserve them like potatoes in pits; if there be want of house room.

Sheep are frequently fed in the field on turnips, and the advantage of this plan, in manuring light soils, is so great, that very valuable crops of barley and wheat have been taken from the most porous soils after turnips so consumed. Swedish turnips are eaten greedily by horses. The best way is to steam or boil them after they are sliced, as no root requires more boiling than the Swedish turnip.

You can easily save your own seed (of which 5 or 6lbs. are required for a plantation acre) by transplanting in November those of the best form, and cutting off the tops; they will ripen their seed in the following July.

That you may see the probable produce of an acre of turnips, and its great superiority over the potatoes, for cattle feeding, I subjoin a table of weights, &c. from Mr. Curwen's agricultural hints: his experiments were made on an English acre of rich sandy loam, which is only 30 perches more than half an Irish plantation acre:

	Weight of bulbs.				Weight of tops.			
	<i>tons.</i>	<i>cwt.</i>	<i>sts.</i>	<i>lbs.</i>	<i>tons.</i>	<i>cwt.</i>	<i>sts.</i>	<i>lbs.</i>
Swedish, drilled at 30 inches,	26	10	4	6	4	18	6	11
Swedish, transplanted,	28	5	3	2	6	1	5	13
White Norfolk, transplanted,	32	10	0	0	8	5	2	3
Red ditto,	27	4	6	0	14	12	6	3
Yellow,	34	16	6	8	6	9	5	1
Cabbages of the 100-head-kind,	26	10	0	0				

The following were the weights of some turnips exhibited in Camolin last October, and grown, I believe, by Lord Courtown and John Brownrigg, Esq.

Red Norfolk—One turnip washed and free from tops and fibres, weighed 13lbs. 12oz. and measured 32 inches in circumference and 16 inches in depth.

White Norfolk, weight 11 lbs.

Swedish Ditto, weight 9lbs.; measured $27\frac{1}{2}$ inches in circumference.

Now, since an average, on the poorest lands, of 20 tons of globe turnips per Irish acre might be expected—which is three times the probable weight of potatoes on the same ground—it would surely be most desirable to cultivate them generally for your cattle. There is an objection, however, and one not readily got over, where *partial* experiments are made, and that is, the plunder to which turnip fields are exposed in a country where men, women and children gnaw them with avidity. Let *every* farmer sow them and then robbing or begging them will cease. It is the novelty and rareness of the crop which lead people to devour them. A little experience in the way of indigestion, or, in homelier language, a smart fit of *gripes* once felt in consequence of eating raw turnips, will soon put a stop to the practice of stealing them by children; for in this honest country few

grown-up people will run away with them. The case is similar to that of bean growing; in the Barony of Forth, where it is very frequent, the crops arrive at maturity without loss; they are familiar to the natives—nobody there improperly meddles with them; but if I should sow a field of beans at Ballyorly, where they have never yet been seen, my young neighbours would save me the trouble of pulling a single bean. Sow turnips, every one of you, next June, and you will not lose many stones of them by theft; and sow a few Swedes in May, and Aberdeens, as well as some of the globe kind later, in order to have a successive supply for late spring feeding the following year.

No. XIII.

On weeding land, poor *Pat* small care bestows,
 Tho' weeds are farmers' most pernicious foes,
 What pure delight to careful eyes it yields
 To see the Scottish lasses in the fields,
 * *Sans* shoe or stocking, handling tidy hoes
 And cutting every weed that shews its nose!
 Yet to my mind, the Wexford maid surpasses
 In *beauty*, tho' not industry, Scotch lasses.

Beans are much cultivated in the Barony of Forth, where a compost of sea weed, sand, and earth is easily prepared, and where the soil is peculiarly favourable to them, but I believe they are seldom or never sown in drills there, except on Mr. Meadowe's model farm at Hermitage. The broadcast plan is a very slovenly one, requiring a greater quantity of seed, giving less produce and affording infinitely less benefit to the succeeding crop of corn than the drill method. The book to which I have before referred (*A Report*

* A French word, signifying *without*.

on the Agriculture of Flanders by the Rev. Thomas Radcliff,) supplies us with the following accurate and satisfactory information derived from an experiment made to ascertain the difference of result between the drill and broadcast management. The gentleman who introduced the drill culture, in the part of Flanders alluded to, from a proof of its superiority, prevailed upon his tenants to follow his practice there, and I hope that Mr. Meadowe's spirited example will have equal success in all parts of this country where beans are grown.

Comparison between drilled and broadcast beans.

M. Weilande, of Ostend, having heard of the drill husbandry of some parts of England, was resolved to compare it with the broadcast method under his own particular inspection; to this experiment he gave up a certain portion of land which had been manured the year before for winter barley; this piece was of equal quality, had been equally manured, and had borne an equal crop. The seed and produce were as follows :—

	Quantity of Seed.	Produce per Plantation Acre.
Broadcast - - -	24st.	8lbs.
Drills two feet asunder -	16	10
Saved of Seed by drilling	8	

The barley, which was sown afterwards, produced after the broadcast beans, little more than 10 bls. per acre, and that sown on the drilled part produced more than 15 bls. per acre. The soil of the broadcast part was hard, difficult to be worked, and covered with weeds; that of the drilled part was clean, loose, and in fine tilth, which accounts for the superiority of the barley crop in the following year on the latter part; the grain was much finer also on the drilled part, and the ground was perfectly clean. The superiority of the drill husbandry over the broadcast in this instance

is very striking, not only in the saving of seed and in the increase of produce, but in the more important circumstance of preparing the ground for the following crop in such a manner as to render that also more productive ; and it is remarkable that from this improved tilth by the drill method, the number of sheaves is not only greater, but their produce also is proportionably increased, for in this instance less than 53 sheaves of the drilled beans produced as much as 57 sheaves of broadcast beans yielded. In like manner, with respect to the barley of the following year, 34 sheaves from that part which had been under the broadcast beans the year before, did not produce more than 27 sheaves yielded from the drilled part."

In the Barony of Forth, where, from the abundance of sea-weed, and excellence of the soil, much greater crops of beans and barley are produced than appear in the above calculation, the advantage of drilling would be proportionably greater. The truth is, that beans do *well* in the latter place, *in spite of the farmer*, owing to the quality of the land, and facility of manure, but under good management they would be *most luxuriant*. But I need not travel all the way to Flanders for example of drilled beans—for in Scotland they are universally drilled, fostered with the utmost care, and much more productive than in the other country—it is not uncommon to see in Scotland 20 acres under the drill beans, in a single field, without even a solitary weed among them. I recollect having seen some old and young women employed with hoes in a very large field of beans, which appeared to *me* perfectly clean. Curiosity led me to watch their operations, first at some distance, and afterwards to walk up to them—but I must first tell you that all these women, though without shoes and stockings, had their heads covered with large bonnets of English nankin, completely shading their faces and necks from sun and wind ; they also wore very smart looking bed-

gowns, and linsey-wolsey petticoats, and the younger ones had their hair in paper curls. Pray, my dear, said I to the youngest and best looking of them, (though, to tell the honest truth, she would have been considered a very ugly girl in this country,) pray, said I to this Scotch beauty—what are you doing? weeding, Sir—weeding, my dear! where are the weeds? After hoeing close to the beans for a little time, she pulled up a very small piece of scutch or couch grass, which she held up in triumph, as much as to say, “what a pretty piece of business it would be to leave this in the ground!” And in fact these women were all employed to *look for weeds under ground*, not sent out, as among us, to relieve a half strangled crop from an overburthening tribe of weeds; for the Scotch well know by experience, “that a stitch in time saves nine,” and that, if weeds on their first appearance are effectually taken out, weederers will subsequently have little to do.

The best soils for beans are clays and strong loams; turnip soils or sands are by no means proper for them.

No. XIV.

The *Rape*'s a useful plant of Cabbage tribe,
 And too well known for Martin to describe;
 Seed, leaf, and stalk, have each of them their use,
 And almost every soil will *Rape* produce.

Leaving the consideration of carrots and parsnips, as a food for cattle, to a more advanced age of farming, I shall conclude my few hasty hints on green crops, with some observations on the use of rape, which I shall abridge from the more copious and satisfactory suggestions offered by the author of the

Agriculture of Flanders, along with his most valuable communications relative to the manure, of which the rapecake is a powerful ingredient. Rapeseed, says this gentleman, is an object of such moment in Flanders, and so well suited to the generality of the soil in Ireland (particularly to those parts which are as yet unreclaimed, but which, by means of this valuable seed, might be converted with profit into a state of cultivation and fertility), that it was satisfactory to learn on the spot, from a very intelligent farmer, the precise value of the crop, which I found to be upwards of 17 barrels, of 16 stone each to the Irish acre—which at the low rate of 1*l.* 14*s.* 10*d.* per barrel, would amount to 29*l.* 12*s.* per acre. The mode of tillage is as follows:—The seed bed is sown in August; in October, or sooner, the stubble is ploughed over, manured, and ploughed again; the plants are either dibbled in the seams of the plough (each furrow slice being twelve inches broad) and set out at twelve inches distance in the rows, or instead of being dibbled in, upon the second ploughing, are laid at proper distances across the furrow, and as the plough goes forward, the roots are covered, and women follow to set them a little up, and to give them a firmness in the ground where necessary. Immediately after the frost, and again in the month of April, the intervals are weeded and hand-hoed, and the earth drawn up to the plants—which is the last operation till the harvest. It is pulled rather green but ripens in the stack: it is then threshed, but the application of the haulm or straw is a matter of new and profitable discovery. It is burned for ashes as manure, which is found to be so highly valuable beyond all other sorts which have been tried, that it bears a price as three to one above the other kinds; and it is considered that upon clover, a dressing of one third less is sufficient. It is sometimes sown in Flanders as with us, in broad cast, but the general method is by transplanting, which has many advantages—of

which one is, that the seedling bed occupies but little space whilst the land is bearing corn; by having the plants growing, there is time to save the corn, and to plough and manure the stubble.

But the Flemish farmer is not always satisfied with the profit on the seed—he generally has an oil mill, the profit of which is very considerable. Some establishments of this kind in the reclaimable bogs and mountains of Ireland, would shortly spread the cultivation of this profitable seed, which in many cases can be grown without manure, but always on the burnt surface of the ground to be reclaimed; and by its own refuse (the cakes from which the oil has been squeezed out) is capable of renewing the soil which has produced it, and preparing it for other crops. In mountainous tracts, where limestone is not to be found, but where mill-sites occur, it might act as a profitable improvement in every branch of its process.

It is gratifying to learn from the able author whom I am quoting, that Mr. Samuel Garnet, near Kells, in the County of Meath, reclaimed several acres from a marsh (without any manure except the burnt surface) by the culture of rape, producing the most luxuriant crops. His first essay of about 8 acres yielded 17 barrels per acre, and sold at 4*l*s. per barrel, making 34*l*. 17*s*. per Irish acre. In the succeeding autumn he prepared 38 acres of transplanted rape, which promised still better than that of the former year, and afterwards he had 45 acres of it. This reclaimed marsh had been only useful in the summer months to horses and young cattle. By taking the proper levels, and sinking the river at a considerable cost, Mr. Garnet has set a spirited example of industry, and now begins to reap the advantage of his enterprise. The manure from which the rape crops are raised in Flanders, is urine (with the rape cakes dissolved in it,) and it is saved in the following way: there is a urine cistern formed under the range of every stable and

cow house, from each stall of which the urine is conducted to a common grating, through which it falls into the vault; from thence it is taken up by a pump. This kind of manure is relied on beyond any other upon all the light soils through Flanders, and even upon the strong lands, is coming into great esteem, being considered fit for most crops and all varieties of soil. May it not then be pressed upon your notice? In England and Scotland it is little known; in Ireland, not at all. Where farm offices are to be built, the additional cost of forming them upon vaults, and regulating the flagging and pavement, so as to fill those vaults, would be soon repaid by the advantage of the best kind of manure, which at present is suffered to flow away in waste. Even to offices already built—even to the poor man's single shed, a cistern or tub might be added.—Nothing more is required than that rain or any other water should be kept out. The collection made in winter from turnips, rape, (for rape is a very fine green food) and cabbage, &c. would be a great source of fertility; but if once connected with a regular soiling system, the increase would be immense. By an extensive cultivation of rape, and by the general establishment of these cisterns, to what pitch of improvement and produce might not our light lands be advanced? If it be a fact that, upon a Flemish farm, the urine of 44 head of cattle, with the addition of 12,000 rape cakes of 2lbs. each, is sufficient to manure in the best manner, twenty-one English acres, the owner of a rape mill on Irish moors, who could house 100 head of cattle, might venture on the improvement of a very extensive tract with every prospect of success.

No. XV.

Too high the Poet cannot raise his strain,
Who speaks of *Wheat* our most important grain,
Without attention to manure and soil
The farmer's trouble will be useless toil,
Attend then to the lessons I impress,
And may kind Providence your labours bless.

The soil best suited to *wheat*, is that which rests upon an absorbent bottom, and whose texture is between light sand and heavy loam; but this is not by any means the only description of soil on which it can be successfully cultivated; for since the introduction of clover and turnips, light soils are found to yield good crops of it. Even on sandy land after clover a reasonably good crop may be had. Most parts of this county are unfit for wheat, because its soil, for the most part, is without any proportion of lime, which is absolutely necessary to the luxuriance of wheat. Lime, as well as animal manure, produces the gluten of wheat. The crops of this grain which grow in the neighbouring counties of Carlow and Kilkenny (in the soils of which lime abounds,) are vastly greater at all times than in this county.

On rich loam, wheat may be cultivated every second year after manured green crops; but where the improved system of green cropping is not pursued, a fallow (such an one as I have described in a former number,) will be necessary once in four, six, or eight years, according to seasons and circumstances; and manure should either be applied to that fallow for the first crop of wheat or laid on the wheat stubble for a crop of drilled beans, which insures the succeeding crop of wheat; but on those light soils on which *occasional* wheat cropping may take place, summer fallowing need never be resorted to, because a crop of turnips, which admits every branch of the cleaning

process, may be more profitably substituted. Wheat, in such cases, comes properly after turnips, though in general it must be sown in the spring months, unless the turnips are stored, in which case it can be sown early in November; or it may better be sown after clover, in the fourth rotation, barley being usually preferable after turnips. I may add, however, that on light lands, as Wexford farmers well know from experience, after a good marling, which gives solidity and favourable manure, wheat will answer well. The kinds of wheat in general use (of which there are many sub-varieties) are, the white, and red, of which the red is more hardy---the former, on suitable ground, more productive, and yielding a superior flour. In late situations and less favourable soils, and for spring sowing, the red varieties answer best.

The climate required to bring wheat to perfection must be such as affords a dry and warm season for the blossoming of the ear and the ripening of the grain. Wheat will bear a great deal of cold during winter, if sown in a dry or well drained soil; and yet moderately moist weather, before the flowering season, and after the grain is formed, is favourable to wheat, but continued heavy rains immediately after the flowering season produce smut. The dry frosty winds of February and March, and even April sometimes are more injurious to our wheats than any other description of weather---mildews often result from sultry winds or fogs; and cold, in the blossoming or ripening seasons of July, even without wind or rain, produces an inferior grain, greatly deficient in gluten: and heat, the contrary.

I have often seen fifty shillings or three pounds paid for a barrel of wheat, every grain of which has been sown by a poor farmer on his solitary acre, though 8 or 10 stone would be sufficient.

Seed wheat is prepared for sowing by the process called pickling. Though all farmers agree as to the necessity of pickling to prevent smut, they do not so

well agree as to the mode of doing it---stale urine is considered the safest and surest pickle, and where it can be obtained in sufficient quantities is often resorted to. Some again are advocates for a pickle of salt and water, strong enough to buoy up an egg, in which the grain is to be steeped for at least 48 hours: but all admit the utility of mixing the wetted seed with hot lime fresh slacked. You are to observe, however, that if the seed steeped in urine is not immediately sown, it will not grow, and that if the other pickle is not strong enough it will not be a preventive against smut.

No. XVI.

When even Doctors differ, 'tis no wonder,
That Farmers' notions should be wide asunder;
But, if you mark the modes prescribed by me,
I think it likely that you'll all agree.

The best soil for *Barley* is a light rich loam finely pulverised. It will neither grow well on a sandy nor soft soil, nor on strong clays, such as are suitable for wheat. The best season for sowing barley is from the beginning of April to the middle of May; but *Bere* may be sown in autumn, or as late as the first week in June. The best grain for sowing is that which is free from blackness at the tail, and is of a pale, lively, yellow colour, intermixed with a bright, whitish cast; and if the rind be a little shrivelled, so much the better, as this proves that the skin is thin. In this, as in all other grain, the utmost care should be taken that the seed be full bodied. In dry seasons steeping the seed in water, 24 or 36 hours is very necessary. Barley that has been wetted for malting, and begins to sprout, will come up soonest and produce as good a crop as any other.

A gentleman informs us, that *in a very dry spring*, he soaked some barley, for 24 hours, in some black water which had oozed from his stables and dunghill; after which he mixed the seed with some sifted wood ashes, to make it spread regularly, and sowed some fields with it. He also sowed other fields with the same seed *dry*; but the crop from the latter was, like his neighbour's, very poor, mixed with weeds and green corn when harvested, while the produce of the other was *three times as great*, without any small or green corn, or weeds at harvest. Among the best farmers it is a disputed point—"whether much or little seed should be sown. If the early part of the season be dry, the plants will not only be stunted in their growth, but will send out off-sets; and if rain afterwards fall—an occurrence that must be expected during some part of the summer, often at a late period of it---the plants begin to throw out shoots which will not ripen with the remainder; consequently an *unequal sample* is produced, and the grain is for the most part of an inferior quality. But if you sow a sufficient quantity to ensure a full crop, without depending on its sending out off-sets, your crop will grow and ripen evenly, and all your grain will be good." So says one; now hear the other side of the matter—"When a little seed (says a noted farmer) is given to the ground, the produce is greater and the corn is less liable to lodge; for when corn stands very close, the stalks are drawn up weak, and on that account are less able to resist the force of the winds, or to support themselves under heavy rain. In poor lands sow thin, or your crop will be worth little. Farmers who do not reason on the matter will be of a different opinion, but the fact is undoubted."

Now, hear me, Martin Doyle:---I tried very thin sowing last year, and I had so many off-sets ripening unequally, so miserably thin a crop, and so bad a grain, that I shall, in future, give a full quantity of seed, agreeably with the advice first quoted: but I advise you on this, and every other doubtful point, to make

experiments for your own satisfaction and information ; try a single ridge or two each way, and afterwards act according to the result of your own practical experience. We all sow too much seed of every grain ---wheat can hardly be sown too thin---oats may be sown thicker---and barley, perhaps, in a medium between both.

I must admit (though I do it reluctantly) that barley in England and Scotland is generally sown broadcast. When barley has been up three weeks or a month, rolling will serve it, by preventing the sun and the air from penetrating the ground to the injury of the roots, and by breaking all the clods. If the blade grows too rank, as is sometimes the case in a warm, wet spring, mowing is a better method than feeding it down with sheep ; because the scythe takes off only the rank tops, but the sheep, being fond of the sweet end of the stalk next the root, will often bite so close as to injure its future growth. Barley is ripe when it droops and falls, as it were doubly, against the straw, owing to the brittleness of which, it must be then cut down without delay, else much loss will be sustained. In England, where labour is dear, it is generally cut with a cradle scythe, and carried home loose after lying in the swarth some days to dry. In Scotland and Ireland, it is generally reaped and bound. There is a kind of hook used in Flanders for reaping, which would be a much better instrument for you to use than either scythe or common sickle, and of this I perhaps shall yet give you a description.

Barley is the best grain to sow clover with ; and from the great demand for malting barley, it is generally a profitable crop. Its diseases are very few—chiefly smut, which it is found cannot be prevented by pickling and liming. No seed grain requires to be changed more frequently ; else it becomes coarser and coarser every succeeding year. Fourteen pounds of this grain yield 12 bls. of meal.

The preparation of the soil for *oats* is less than

for any other grain; and it will grow on every kind of soil, from the stiffest clay to the lightest moss or bog, if it be dry enough. For lowlands, the potato and Poland oat is the best; for inferior soil, the common white, and for the poorest of all, the *black oat* is fittest.* In regular rotations, oats are chiefly sown after grass; after which it always succeeds best, as a full crop is usually obtained in the first instance, and the land is left in good order for succeeding crops. In a former number I told you *how* to sow oats on lay or grass lands—simply by harrowing: but instead of *beginning* your rotation with oats, you commence with potatoes or wheat, at a heavy expense of tillage, and you take *crop after crop* of oats at the *end* of your rotation exhausting the ground completely, and then letting it out with *dirty* hay seeds to recover its fertility as well as it may. Land sown with potato oats takes less seed, in point of *measure*, than any other kind; first, because it litters better, and secondly, because, having no *awn*, a greater number of grains are in any given measure. No preparation is ever given to the seed, but it should be plump, fresh and free from seeds of weeds. The best time for sowing is about the middle of March. Autumn oats are generally killed during a severe winter, being less able to resist frost than wheat, bere, or *rye*. This last grain, on sandy and moory lands, is a valuable crop for a poor man. It produces well; the bread made from it is used by all the peasantry in Germany and Russia—Mixed with barley or wheaten flour, it makes a very sweet and wholesome, though coarse and dark coloured loaf. The straw is excellent for thatching and collar-making. The climate for rye may be colder than for wheat; but it is rather more injured by rains in winter and equally injured with wheat by moist weather during the flowering season. It may be sown

* The *black Tartary*, a new variety, is both productive and early.

in autumn or spring, broad-cast or in drills, (the latter to be preferred,) but not in a wet soil, because it vegetates more slowly than wheat, and might rot before the time of its budding, if not sown in dry ground.

No. XVII.

Dung well the stiff and stony soil,
Nor intermit your useful toil,
But still more let the barren *mind*
Assiduous care and culture find,
Believe the friendly Poet's strains
Both labours will repay your pains.

The *manures* with which you are concerned are *dung, lime, white and blue marl, ashes, sea-weed* and *sea-sand*. I shall abridge, correct and simplify for you all that the best farming books, communicate about these manures.

Dung is the chief of all manures, because a large quantity of it may be collected in every farm, and because it makes the quickest return. The dung of animals that chew the cud being more thoroughly putrefied than that of others, may be at once mixed with the soil, without being collected into a dunghill. A horse does not chew the cud, and in horse dung may be seen hay, straw, and oats, broken into small parts, but not dissolved; it is therefore proper to mix it in a dunghill with clay, or any other cool substance, that it may completely putrefy. If left in a heap by itself (even for a few days) at a stable door, it will *singe*, being so hot in its nature. The difference between the dung of a horse and that of a horned animal or sheep, is visible in a pasture field; the grass round the former is withered—round the latter it is ranker

and greener than in the rest of the field. A mixture of dry and moist stuff ought to be studied, because the former drawing moisture from the latter; they become equally moist.—Stable dung, therefore, should be carefully spread on the dunghill with other matter, in order that fermentation and putrefaction may go on equally; but it is a mistake to allow *too much* fermentation, which causes a great loss of fluid, and of other matter which is useful to the nourishment of plants, of which some kinds (potatoes for instance) thrive better with *fresh dung*—clayey soils too, which retain moisture, may receive dung less decomposed—but all the small seeded plants, such as turnips, clover, carrots, &c, which are very tender in the early stage of their growth, require to be pushed forward with the least possible delay by means of short, *rotten*, dung. The time for manuring a field with dung is in its highest state of pulverization, immediately before setting cabbages, sowing turnips, wheat &c., and dung should be spread and ploughed into the ground without delay, lest its rich juices should be exhaled by the sun: if applied as top dressing to meadows, dung should be put out on the appearance of rain, which will wash the juices into the ground. There is a common practice of drawing out dung in or before winter, leaving it exposed, in a loose, scattered state, to frost and snow. By this the whole spirit of the dung is washed away by rain, and what is left becomes dry in spring, and incapable of being mixed with the mould. When carried out during the frosts of winter, into the field in which it is to be used, it should be carefully built in dunghills of a square form, at least three or four feet in height, with clay or any other cold substance sprinkled or mixed through it.

To prevent sap from running out of a dunghill, its bottom should be below the surface of the yard; and to prevent rain from running into it, it should be surrounded with a ring of close clay or sods. If the

bottom be porous, let it be flagged or paved, to prevent the sap from sinking into the ground, and the over flowings of it can be carried by a gutter into some hollow, where good rich mould should be laid to receive it, which will become as good as stable dung; but the system recommended in No. XIV. is far the best preservative of the principal liquid.

When dunghills heat too much, water is sometimes thrown over them to check the fermentation. This may cool the dung for a time, but, moisture being a chief agent in all the processes of rotting (of decomposition), to supply water to fermenting dung is to increase what you want to lessen. As dung is an article of the first importance in husbandry, one would think that the collecting it would be a great object with the industrious farmer, and that every thing would be collected which will rot. There is one article, however, almost universally neglected, to collect which there is a double motive—weeds. A farm full of these is a nuisance to its neighbourhood; it poisons the fields around, and the possessor ought to be disgraced as a pest to society. Now, the cutting down of weeds before their seed is formed answers two purposes; first it encourages good crops by keeping the ground clean—secondly, it adds to the quantity of dung. By mixing them with other substances—by littering in summer, when straw is scarce, with weeds and the long rank grass of ditches, and in autumn with stubble-straw, (the pulling of which will well repay the time and labour,) a vast deal of manure, which is now lost, might be saved.

Good management and industry will turn every animal and vegetable matter into manure, and prevent that waste which is so common. Were I to tell you of the ways and means by which manure is made and economised in China, where it is necessary to raise food for a tremendous population, you would think me a bouncer; delicacy prevents me from entering into all the details. This much, however, has

been gravely told, as an instance of the extreme economy which prevails there, that ** the barbers of China frequently make respectable fortunes, by selling for manure, the suds in which they have lathered and shaved their customers.*

Mixing dung in a fermenting state with earth, in which there is much dead vegetable matter, such as the *scourings of ditches, &c.* is a good practice. It will rot and dissolve this dead matter, consisting of the roots of decayed grasses and other plants, and prepare it for giving nourishment: *there should always be a supply of earth at hand to be mixed with fresh stable dung, and receive the juices of the dunghill.*

Lime is next to be considered. This is a most important manure; indeed no soil will ever be fit for much that does not contain this earth, either naturally or by artificial application. In applying lime, you should attend to the following rules:

1. Apply it in a powdery state, because its effects depend on its being well mixed with the surface soil.

2. Plough or harrow in lime very lightly, because it sinks in the ground.

3. If you lime or marl a pasture field, do not break it up for a year or two afterwards, when the manure will be washed into the roots of the grasses and blended with the soil.

4. Slake your lime with water which will reduce it to a powder at once; whereas if you leave it to be slaked by accidental rain or moist air, it will not be powdered so effectually.

5. If you make a compost† of lime and clay, let a platform of any kind of mould or earth, the richer the better, be formed, about six inches thick, twelve feet wide, and as long as may be necessary for the

* I do not, however, pledge my reputation for the strict truth of this story.

† The compost, which is an imitation of soap ash, should be prepared at least two or three months before the time of using it.

extent of land to be manured. At one end of this let the first load of lime fresh from the kiln be placed about four inches thick. Let the lime be then not only slacked but *moistened* with a solution of rock-salt, or any common salt, in water, at the rate of 6lbs. of salt to each barrel of lime, pouring the solution, or pickle, gradually and evenly on the lime, as the latter is found to imbibe it. Then spread the lime thus moistened two or three inches thick on the platform, and cover it with four or five inches of mould. Let the second load of lime be placed on the platform near the first, and treated in the same manner. When the entire platform is thus covered, begin again with a second layer of lime; slake, moisten, spread and cover it, as the first, until it be also finished, and proceed in the same manner with a third and fourth layer. If the mould be not collected in one place, but deposited in a long row, as when the earth of a headland is used, one or two layers of lime and earth will be more convenient, and will be equally advantageous. When the whole is covered with earth, let the heap be cut down and well mixed, in which state it may be suffered to lie until a short time before it is used, when it should be again turned. The proportion of water in which the salt is dissolved depends on the state of the earth or mould. If the latter be wet, twenty gallons of water impregnated with 6lbs. of salt, is sufficient for each barrel of lime; if it be dry, half a hogshead of water to that quantity of salt and lime will be necessary. Forty barrels of lime treated in this manner is a full dressing for an acre of potatoes; half the quantity is enough as a top dressing for an acre of grass land.

6. Never mix dung, earth and lime together in a compost, because the lime will destroy some of the most valuable part of the dung. It will depend, too, on the nature of the earth whether any lime should be mixed with it, to form compost. If there be much dead matter in the earth, (as is the case in old

sods, scourings of ditches, &c.) lime mixed with it will prepare it for becoming food for plants: but if rich earth be taken from arable fields or the bottom of dungpits, &c. and mixed with quick lime (which is the kind I am supposing), the whole mass, for certain reasons (depending on chemistry), will be less fertilizing; so that making composts of rich soil of this description, with dung or lime, mixed or separate, is, to say the best of it, a waste of time and labour.

Limestone powdered makes an excellent manure. The road scrapings in the limestone counties is a fine substitute for burnt lime. Three pounds of unburnt lime by burning are reduced to two pounds of shell lime, yet nothing is expelled by the fire but the gas that was in the limestone—the calcareous earth remains entire.

Malt dust laid on the surface of a meadow, however old or poor, will cause the rankest vegetation.

No. XVIII.

A novel plan to make old soil
 Repay the skilful tiller's toil,
 Is here from Mr. Radcliffe sent,
 And Martin thinks it excellent.

The *banking* to which the above lines so critically apply, is the collecting of old lay sods into banks, as first tried, three years ago by the Reverend Richard Radcliffe on a small farm near Enniscorthy, in the following manner:

He lightly ploughed half an acre of old grass land, employed boys and girls to collect the sods into banks twenty paces asunder, by which the expense of car work was saved. When this was done, the spaces

between those banks were ploughed, and drills being formed, he gave the usual allowance of manure, and planted potatoes in them; then, that the banks (which were twelve feet in breadth and two and a-half feet in depth) might not be unproductive, he had them also planted with potatoes in the Munster fashion, with the back of a spade, taking care to cover them sufficiently from furrows at each side of the bank. The produce from these heaps was much greater than from the drills. In the succeeding year, he mixed lime or salt with those banks, from which he had a sufficient supply of rich manure for more than four acres of potatoes or turnips. The wheat and oats in the intervals were surprisingly great and perfectly free from weeds, of which the seeds and roots (with the *wire* worms which are so destructive) had been effectually carried away in the sods and converted into manure. Cabbage plants, carrots, turnips and mangel wurzel grew to a prodigious size* in some of those banks, while the intervals were bearing corn crops.

The general advantages to be obtained from this plan, Mr. Radcliffe states to be (and in his opinion he is strongly supported by the flattering approbation of the veteran agriculturist, Sir John Sinclair, who has written a complimentary letter to him on the subject of his discovery,) the collecting on the spot a great quantity of the choicest manure, producing valuable crops, while it is rotting; the clearing of the land from weeds; the saving of a ploughing to one-sixth part of the field, which of itself will produce more abundantly than the remainder that is cultivated in the best manner, and the bringing into action a body of fresh earth, enriched by manures washed into it during the preceding years.

* TOBACCO will flourish surprisingly in these banks, if a small quantity of rich compost be laid under each plant, provided that the *wire* or *cut* worm does not remain in them, otherwise, the tobacco plants will be eaten through the stems as fast as they are planted.

In truth this plan of Mr. Radcliffe's, of which I have read and heard much, is most important to any man who has *old grass* fields to break up, *provided that the soil is not too light*, and even in this case, the sods (after thorough harrowing, to shake off the clay) should be collected into heaps, and planted with potatoes, instead of being wastefully burned, or suffered to lie withering on the surface, injuriously depositing seeds, worms, and the eggs of numberless insects.

A good manuring of the intervals in the first year, from the dunghill, sets the whole business going for several years, *but this is indispensably necessary* in the first instance, as I have ascertained by experiment; having tried corn in the intervals without manuring, after I had stripped the land of its sod, the corn, (wheat, oats, barley,) failed. In the second year, you will have corn in those intervals, while the banks are again under potatoes or any other green crops, and every second year you are to take away a portion of those banks for the intermediate spaces, until the whole mass of rotten sods shall have been put out upon the ground from which it was originally taken. *There is no robbing of Peter to pay Paul in this case.* The field, in the course of cropping, gets back in rich manure what at first was taken off in unclean and unproductive surface, for there is to be no shifting of the banks to other fields, or other parts of the field, else the economy of the plan will be destroyed.

The drilling of corn crops is the next matter which this number will treat of, and it is a subject of extreme importance to the farmer's interest. The advantages of the drill system in green crops, I have already shewn in two or three cases by actual calculation—and where corn and green crops have been alternately cultivated in drills, I learn that it has been proved by a Mr. Baker, that there is a clear profit arising from one Plantation acre in fifteen years (in the

drill husbandry) of 52*l.* 3*s.* 11*d.* and in the common husbandry of 27*l.* 19*s.* 2*d.* and therefore a greater profit in the drilled acre in fifteen years of 24*l.* 4*s.* 9*d.* which amounts to 1*l.* 12*s.* 3*d.* a year. Mr. Baker calculates that in every fifteen years the fee simple of all the tillage lands of the kingdom is lost to the public by the common course of tillage. The slow progress which the drill husbandry has made is principally owing to the want of proper drill-ploughs—before *drilling* can become general, those ploughs must be simple such as a common ploughman, accustomed to strong instruments, may use without breaking, and such as common workmen can easily make or repair; complicated machines, except on large farms which can bear the expense of purchasing them, are not to be thought of; simple instruments are what *you* want. Now, I can assure you, that for wheat sowing, for which drilling is chiefly necessary, a common narrow seed-sowing plough, drawn by one horse, will answer the purpose of opening the drills, perfectly well; the seed (about ten stone to the acre, and the drills twelve inches apart) can be thinly sown broadcast, and when harrowed lengthways it will fall regularly into the drills. A *very small holder*, who has only from a rood to an acre of corn, will find himself greatly paid for his labour if he opens drills with a hand hoe, two inches in depth, and afterwards covers with a bush or rake. All the seed, deposited at an equal depth and carefully covered, will be sure to grow, and thus a saving of seed much greater in value than his extra labour (which by the way his children could perform) will be gained. Nor need a farmer fear that his intervals will be waste; corn that is sown in the common way seems indeed to cover the ground better than in rows, but this is a mere deception of the eye, for the stalks of corn are never so thick as when they come out of one plant, or as when they stand in a row; it is only the different placing that makes

the broadcast crop seem the larger, and even this, is only when both crops are young. And farther, it has been abundantly proved, that where the intervals have been greatest, the largest crops have been produced, and those where hoeing was used, without manure, have been richer than where manure was used and hoeing omitted: because, *the plants receive their growth, not according to the ground they stand on, but to the ground they can extend their roots into.* In drills, the earth can be stirred (and in stiff grounds wheat will be particularly benefited by it) with either a horse or hand hoe, by which the plants will have supplies of nourishment, which they could not have, when scattered over the whole ground and occupying every inch of it. The lightest and driest soils are the best for drill husbandry, and tough and wet ones the worst. In heavy land, covering with spade and shovel, or sowing under the plough in narrow ridges (to be harrowed down the following spring) is a good mode. You must always be guided by seasons and circumstances, but the occupier of a solitary acre or two should contrive to drill every crop (flax excepted) *he* can drain and pulverize his little patch effectually—*he* at least should introduce the practice of the garden into the field---*he*, from having so little to do, can easily sow in trenches drawn regularly, of an equal depth, and that depth suited to the kind of seed, and instead of rearing those pernicious weeds whose seeds are winged with down and carried by the wind to great distances, he may have clean and enriched soil, and crops incalculably greater than those which it has hitherto been his lot to raise.

Land sown with wheat, however well tilled in autumn, sinks in winter and binds, so that in spring the land is nearly in the same situation as if it had not been ploughed, but that is the season when it should branch and grow with the greatest vigour, and therefore stands most in need of ploughing or

hoeing, to destroy the weeds, to supply the roots with fresh earth, and by dividing anew the particles of the soil, to allow the roots to extend and collect nourishment.

Sickly wheat has often recovered its vigour after a good hoeing, especially when performed in weather not very hot nor too dry. This, or any other grain sown before winter, requires hoeing more than oats or barley sown in spring, because if the land be well ploughed before the sowing of spring corn, it neither has time to harden nor to produce many weeds, not having been exposed to the winter's snow and rain.

It is well known that in gardens, plants grow with double vigour after they have been hoed or transplanted; if, therefore, plants growing in arable land could be managed with ease and safety in this manner, it is natural to expect that their growth would be promoted accordingly, and experience proves that it is not only practicable, but attended with many advantages.

No. XIX.

Marls different qualities display,
But each is useful in its way.

Marl (which has not, like lime, the property of dissolving vegetable matter, but which improves the texture of the soil, and acts as one of its earthy ingredients) is a manure with which most of the farmers of this county are well acquainted; its goodness depends on the quantity of calcareous earth or lime in it, which has been known to equal one-half. Good marl is the most substantial and lasting of all manures, and as it adds so considerably to the staple of the soil, in many cases it is preferable to lime; on light, weak land it is of extreme use, and its effects will continue for

several years. Summer is the proper time for applying marl, because, being in that season dry, it is comparatively light, and easily reduced to powder. After an even spreading it should lie on the surface during a winter, except when applied to wheat fallows, in which case it should be ploughed in lightly, and well harrowed; for, like lime, its power depends on its intimate mixture with the soil. The quantity of marl to be laid on an acre, depends on its quality and the nature of the soil to which it is to be applied. Of white or shell marl, the number of loads (averaging 700cwt. each) is about 60, while of the clay or blue marl, 600 loads are required to the acre; the latter kind on sandy and other light soils is obviously the best; on such lands there is little danger of giving too great a dose of clay marl; but where there is a very stiff soil, or a very shallow one, over marling has often proved of worse consequences than under marling. I need hardly observe that clay marling cannot be thought of, unless the carriage of it be short, otherwise the expense would be enormous. In balancing between liming and marling the relative cost must always be calculated, and lime or marl used according to the circumstances of expense.

By the way, *marl* pits disfigure a large portion of the farms of this county; it would be well worth the attention of your landlords, as well as of yourselves, to have those pits levelled as fast as they become worked out, for the purpose of husbandry or of planting. If sallow trees were planted in the hollows, the appearance of the country would be favourably altered, and you would not be justly reproached with unnecessary waste of land; besides, these chasms are very dangerous to cattle in their neighbourhood, and as to fox hunters, unacquainted with their situations, I really tremble for them when I think of the great danger to which they are exposed. Imagine for a moment a short-sighted man, suppose one of your own landlords, who happened to leave his

spectacles at home, galloping on a runaway horse towards a concealed marl pit, deep and yawning, such a one as swallowed up a gentleman of the name of M. CURTIUS (a long time ago) with his horse, sword, and saddlebags ! Think, I say, of one of your own landlords racing (like Johnny Gilpin in spite of himself) towards one of your deepest marl holes, in which, if it be full of water, he may be drowned—if dry, battered to death---can you think of such an occurrence without shuddering ? If, after this hint on my part of the horrors which may occur from not levelling these man and horse traps, they continue open, I shall not pity you if the best lives in your own leases should be among the lost ones.

Ashes are a good manure for a crop of potatoes or turnips. In many places the practice of burning the surface for manure prevails in spite of an Act of Parliament to prohibit it ; however there are many cases in which it may be done with great advantage, as on bogs and heathy hills, in which there is a profusion of perennial weeds. The objection is, that it destroys the surface of the soil ; but where there is too much inert vegetable matter, the destruction of it by fire is beneficial, and the alkali remaining in the ashes is more useful to the crops than the vegetable substances from which those ashes are produced.

Boggy and heathy land, not worth 2s. an acre, by once burning the surface, and afterwards liming or manuring with dung, *under husbandry-like treatment*, has often been rendered highly valuable and productive. *It is against the abuse of this practice, and especially against overcropping afterwards, that you are to guard.*

All stiff soils, as well as moors, are improved by burning, which renders them less stiff and tenacious of moisture, and when properly done may convert a matter that was stiff, damp and cold, into one, powdery, dry, and warm. Where the surface of a bog

is to be burned, the common plan of collecting sods into heaps within a few feet of each other is the best ; for thus no car work is wanted. I have read of an English steward, in the county of Galway, who totally regardless of the simple process followed by the poor people round him, whose heaps were close to each other for the advantage of spreading the ashes, made huge piles of sods, about four to an acre ; now, besides the double labour of first drawing the sods to those heaps, and afterwards wheeling in barrows, or carting out the ashes, the ground did not receive the same benefit ; for the greatest produce is always on the spot, where the heaps have been burned. This Englishman was an uncalculating blockhead, very undeserving of fifty guineas a year, besides as much bacon and beer as his stomach could hold. None of *you* would be so stupid ; indeed I have frequently observed that many of the English farmers are dull and obstinate in the extreme, and more wedded to their own farming practices, however faulty, than my countrymen are, who will more frequently catch and follow a useful hint. The English steward, though he saw a simpler and readier plan than his own, would not follow it ; this, I conceive, was entirely owing to *bacon* and *beer* ; the bacon first made him exceedingly dull and heavy, and too much beer afterwards caused his obstinacy---nothing like potatoes aftey all !

There is, however, a very useful plan for producing ashes from clay, even of the worst description, which is as follows :---Let an oblong enclosure, of the dimensions of a small house be made (say 15 feet by 10) with green sods raised to the height of 3 or 4 feet ; two narrow channels are next to be cut inside, from end to end, passing out through the sod walls, and intersected by two or more (according to the length of the enclosure) channels of the same kind ; those are to be loosely covered with flags or flat stones. On the points where these flues cross each other, dry

sods, or other combustible matter, are to be used; the flues, except on the weather side, are to be closed on the outside openings, and not opened except as the wind shifts about. After a short time these heaps, if properly fed, with dry sods or heath, will be strong enough in heat to burn stiff and even *wet* clay, in small quantities at a time, and repeated frequently. As the inside fills up with burned clay, the outer walls must be raised and always kept at least 15 inches higher than the burning heap, in order to prevent the wind from acting on the fire at top; and as the walls become consumed, the breaches must be made up, or rather new walls must be built. Thus the kiln may be enlarged to any size; and after getting into proper heat, it will burn the largest lumps of stiff under soil, and can only be extinguished by the carelessness of the workmen attending it. Lime may very economically be burned with it.

Half the world was going mad about burning barren clay sometime ago; but I fancy that the value of it has been overrated. The most beneficial clay ashes are obtained from sods, roots of plants, bushes, and other vegetable substances; the value of mere brick dust, of powdered crockery, may, therefore, be overvalued. This will act mechanically, like gravel or rabbit sand, on stiff land, by loosening it, and preventing it from uniting again so closely: it will thus enable the roots of plants to extend their fibres in search of food; but as a fertilizer, when no vegetable matter is in it, I doubt if the burned undersoil, *without vegetable matter* (which is the kind recommended for burning in kilns on clay lands,) has any *enriching* properties.

No. XX.

How bountiful is Nature's King,
 From whom such various blessings spring !
Manures he gives to every land,
 In form of *Limestone, Marl, or Sand* ;
Fat weeds on sea beat shores that grow,
 And *streams* that fertilizing flow,
 Besides what human labours raise
 By skill employed in various ways ;
 Then wisely use the blessings given,
 And show your gratitude to heaven.

Sea-weed is occasionally drifted on many parts of this coast in such abundance as to constitute a principal source of your manure. It produces excellent potatoes if sown early enough, and indeed vegetables of all kinds, particularly cabbages of fine flavour. Sea-weed, however, is not lasting in its effects, which is easily accounted for, from the large quantity of water, or the elements of water, which it contains. It decays without producing heat, when exposed to the air, and seems, as it were, to melt down or dissolve away. A large heap has been destroyed in less than two years, nothing remaining but a little black shrivelled fibre. It is wasteful to allow sea-weed to ferment, *because its fermentation destroys a certain acid (carbonic) and dissolves its mucilage*. The best way of using it is to plough it into stubble as fresh as possible. By so doing, all the useless labour of collecting, mixing, and carting out composts is avoided, and the stubble straw, instead of withering away unprofitably, becomes immediately converted into manure. The usual practice in the barony of Bargy, is to mix earth, sand, and weed, together for potatoes. The advantages of this mode are---creating a supply of short, rich, and *loosening* manure---adding to the staple of the soil, and preserving the juices of the weed, which is, or should be, laid on

the top of the earth and sand with which it is to be mixed. When land is too wet to bear the carting of the weed while fresh from the sea, or when the weed is arriving in such quantities on the shore, as to demand the unceasing labour of men and horses in collecting it, then indeed it would be foolish to lose time in drawing it to distant fields. In such case, it is judicious to have a mass of sand or earth near the beach ready to imbibe its salts and juices; but if it be practicable to bear off the weed directly from the strand to the field, for immediate spreading, labour and time will be saved. Sand, or loose earth, applied separately to stiff land, will have as good an effect in opening it, as if previously mixed with sea-weed.

In short, though the question of mixing or not mixing sea-weed in compost, must be regulated by circumstances, it must be laid down as a rule, that this valuable substance should be applied *while fresh* to the fields which it is destined to manure.

Sea-sand is another manure well known to you, the value of which depends on the quantity of shells, i. e. of lime which is contained in it; but even when sand (like that on our coast) contains little calcareous matter, it has the effect of rendering stiff clays loose and friable. In many parts of Ireland, as at Bantry in the County of Cork, and on the Galway coast, there is coralline sand which has the properties of coral lime---it is full of shells. I have known it to be carried in bags ten or fifteen miles from the coast, on the backs of mules.

Limestone Gravel also changes the nature of moory or clay lands immediately; it acts in a two-fold way, manuring and opening the soil---excellent for wheat.

Common Salt has been frequently tried with success on grass lands as a manure. When used in very great quantities, however, it renders land barren, at least for a considerable time. The virtue of it, as a tillage manure, is I think a very doubtful point, it is sown with the hand, like corn, on fallows, at the

rate of about fifty bushels to the acre, and it is best suited to light furze lands---of which we have a full share in this country. Farms near the sea shore, however, probably contain a sufficient quantity of salt for the purpose of vegetation, and in such cases an additional supply of it to the soil might be, not only useless, but injurious. Storms from the sea carry its spray sometimes to a surprisingly great distance from the shore: Salt is therefore supplied sufficiently from this source to all the land upon our coast for several miles into the interior.

Irrigation, or watering land, is, I fear, universally neglected or unknown in the county of Wexford, although high premiums are offered by the *Agricultural Associations* to coax you into a system by which, without much trouble or any expense, you may have large crops of hay or luxuriant pasturage. How shall I account for your apathy or dislike to irrigation, which, in a thousand places of this county, to my own knowledge, you might introduce with immense advantage. In the many favourable situations which may be found for watering, *meadows* might be rendered extremely valuable (affording in a single year returns four times greater than the expense incurred) where coarse or scanty herbage now appears. Ninety-nine streams out of a hundred are allowed to flow away unprofitably, a great proportion of which might be turned to account by creating meadow land of permanent fertility. The use of running water to the surface of land, for promoting the growth of grasses, has been practised in warm countries from the earliest ages, and seems to have been known in parts of England since the time of the Roman invasions, there having been irrigated meadows near Salisbury, from time immemorial. Now, irrigation acts as a means of giving food to grasses---of consolidating boggy and mossy lands (after being well drained) as a destroyer of certain kinds of weeds, and as the cause of warmth in winter and of coldness in summer;

for it has been ascertained that the tender roots and leaves of grass, covered in winter or in the beginning of spring by water, are often saved from frost, and are many degrees warmer than the temperature of the air above. While water is frozen above the grass, the soil beneath is comparatively warm, and the moisture, penetrating deeply into the soil, becomes a source of nourishment and coolness to the plants in summer, and prevents those bad effects which often arise from a long continuance of dry weather. There is no soil, nor situation, nor climate, in which watering grass land may not be serviceable. The banks of streams occasionally flooding it, in every part of the world, are found to call forth the richest grass. One thing alone is every where necessary---that *the land must be drained*, either by nature or art. Sandy or gravelly soils are the best suited to irrigation, as the effects upon them are more powerful and immediate than upon cold clayey soils. Poor land, when once improved by irrigation, is put into a state of perpetual fertility, without any occasion for manure, or trouble of weeding, or any other material expense. It becomes so productive as to yield the largest bulk of hay, and abundance of the best grass for ewes and lambs in spring (often very early, when it is doubly valuable,) and for cows and other cattle in the autumn of every year. Mountain land, and all such as abounds in rushes, heath, and such coarse plants, are also greatly improved by irrigation.

I shall conclude this Number with a few necessary hints as to the season and manner of *watering*. Winter, or the early part of spring, (not summer, as you might imagine) is the time for irrigating, the way of doing which is to keep water passing over the surface of the land with a brisk current, not so rapid as to wash away the soil, and yet in sufficient quantities to cover and nourish the roots, but not so much as to hide the shoots of the grass. A little experience alone is required, in ordinary cases, as to regulating

the quantity of water and length of time for flooding. A very small stream, if it has a considerable fall, may be carried over a vast quantity of ground, and *used several times*. Good management in this case will be required, in order to make the most of it; and *losing fall* in such a case is wasting the stream. If you were once to see the advantages of irrigation, and would practice it, a great portion of this county might be easily and cheaply improved; every spring and rivulet, however insignificant, would be turned to the important and now neglected purpose of irrigation, fertilizing, in proportion to its size, either a small surface or an extensive tract.

No. XXI.

Ye farmers here your sense display,
And while the sun shines, make your *hay*,
Seize on the hour, ere it be lost,
Or soon you'll know it to your cost.
By time delayed, or time mispent,
Your profits lost, perhaps your rent;
Then learn this lesson, meet for all,
No art of man can time recal.

Hay-making depends so much on circumstances, that it is hard to give specific rules; the chief one, however, is, *give it as little drying* as consists with safety---never, if possible, make it into large field cocks, nor suffer it to heat except in the rick---the following hints may be useful, you will perceive, from reading them, that you are frequently in the habit of spoiling your hay by giving it too much weather---thus destroying its juices, injuring its quality, and lessening its weight.

First Day---Let all the grass mown before nine o'clock in the morning be tedded out and scattered evenly over all the ground; for when grass is suffered to lie a day or two before it is tedded out of the swath, the upper surface is dried by the sun and

wind, and the under part is not dried, but withered and discoloured; so that the herbs lose much, both as to quantity and quality, which is an important consideration. Soon after the tedding is finished, the hay (or more properly grass) should be turned with care and attention; and if there are hands enough to turn it again before dinner time, so much the better. The first thing to be done after dinner is to rake it into wind-rows, and the last operation of this day is to put it into grass cocks.

Second Day---The business of this day begins with tedding all the grass that was mown the first day after nine o'clock; next, the grass cocks are to be well shaken out into little patches of 5 or 6 yards diameter; and if the crops should be so thin as to leave the spaces between these plats rather large, such spaces must be immediately raked clean, and the rakings mixed with the other hay, in order to its all drying of the same colour. The next business is to turn the plats, and after that, to turn the grass that was tedded in the first part of the morning once or twice in the manner described for the first day. This should all be done before twelve or one o'clock, so that the whole may lie to dry while the labourers are at dinner. After dinner these plats are to be raked into double wind-rows; next rake the grass into single wind-rows; then the double wind-rows are to be put into bastard cocks; and lastly the single wind-rows should be put into grass cocks. This completes the work of the second day.

Third Day---The grass mown, and not spread, on the second day, and also that mown in the early part of this day, is first to be tedded in the morning, and then the grass cocks are to be spread into plats as before, and the bastard cocks shaken out in smaller plats. These, though last spread, should be first turned; then those which were in grass cocks; and next let the grass be turned once or twice before dinner. If the weather has been very fine and sunny, the hay

which was last night in bastard cocks may be carried now into the haggard; but if the weather should have been cool and cloudy, no part of it will probably be fit for the rick. In that case, the first thing to do after dinner is to rake that which was in grass cocks last night into double wind-rows; then the grass which this morning was spread from the swaths, into single wind-rows; after this, the hay which was last night in bastard cocks should be made up into full sized cocks, and care taken to rake up the hay clean, and also to put the rakings upon the top of each cock. Next, the double wind-rows are to be put into bastard cocks, and the single wind-rows into grass cocks, as on the former days.

Fourth Day---on this day, if the weather be unbroken, the cocks *should be carried to the haggard for ricking*. The rick should be made gradually as the hay is saved, and all you have to do to secure it from rain, is to ridge it up in the evening, making the top of the rick like the roof of a house; throw that off the next morning, or whenever you proceed with the rick; it will soon dry, supposing the rain to have fallen the night before---salt as you go. The other operations proceed as before, and are to be continued until the hay harvest is finished. As a general rule, hay should be protected as much as possible by day and night against rain and dew by cocking; and it is highly necessary to guard against spreading more hay than the number of hands can get into cocks the same day, or before rain. In showery and uncertain weather, grass may be three, four, or even five days in swath; but before it has lain long enough for the under side of the swath to become yellow, care should be taken to turn the side of the swath with the heads of the rakes.

In making the hay of bog meadows, much care is necessary, from the inferiority of the climate's where such bogs abound, and from the nature of the grasses they produce; their grass being often of so soft a quality that it is difficult to make hay of it. *This sort of*

grass, being capable of bearing a very slight degree of heating, must have much more exposure to the sun and wind than artificial upland grasses. When the natural herbage is of a coarser description, it may be put into small cocks in rather a green or damp state, so as to sweat a little: it will be, in consequence of this treatment, more palatable and nutritious; but when any heat becomes perceptible, if the weather should permit it, the hay should be spread out and put into large cocks the moment it is in a dried state.

Salt, if applied to hay, checks the fermentation and prevents it from moulding; and if straw be mixed in layers with it, the heating is still farther prevented, by the straw absorbing the moisture. Cattle will eat, not only such salted hay, but even the straw mixed with it, more eagerly than better hay not salted, and thrive as well upon it. The quantity recommended is a peck of ground salt to a ton of hay.

I should have before observed, under the head of general rule, that the number of hay-makers should always be proportioned to the number of mowers, so that there may not be more grass in hand than can be managed according to the proper process. This proportion is about twenty hay-makers (of whom twelve may be women) to four mowers.

In order that you may calculate the best season for selling your hay (price of course being considered) it will be useful for you to learn that grass loses three parts of its weight in four, by the time it is in rick (supposing it to be ricked on the 4th or 5th day:) it is then further reduced by sweating* and evaporation, in about a month, perhaps one twentieth more;

* Unless a rick sweat profusely (I mean from its own sap, and not from external damp, which makes it musty,) your hay will not be right good. English hay, though inferior in the *field* to ours, is greatly superior in the stable, from the mode of saving it.—Good farmers who formerly used to make their hay-rick in one or two days, now, seldom finish it in less than a fortnight, often crowning the top of the rick with that which was uncut when the rick began.

thus 600lbs. of grass are reduced to 95lbs. of hay, and between that and 90 it continues through the winter. ---From the middle of March to September, the operations of loading and marketing expose it so much to the sun and wind as to render it much lighter; that is, hay which would weigh 90 in the spring or summer after it has been ricked, would waste to 80 by the time it is delivered to a purchaser in the market, from exposure, trussing, and remaining at market, often during twenty-four hours altogether. During the following winter the waste will be little or nothing. The same hay will weigh on delivery 80 in summer and 90 in winter. You now know when to sell.

Before I conclude this Number, I must remark that in nine cases out of ten, meadows are allowed to ripen too much; the loss which farmers sustain by the exhaustion of land from the overripening of meadows is incalculably great---by overripening, the first growth is injured in quality, the second crop diminished in quantity, and the land injured beyond conception---no grass seed (except where the seed is considered the crop) should be allowed to ripen---mowing (provided you mow early and before the seed has ripened) will exhaust but little in comparison. Corn must ripen because the seed is the crop, but in meadows, *hay* and not seed is the crop.

No. XXII.

Beware the fate of Mr. Synge,*
 From England if your maids you bring;
 Then how shall Irish damsels please,
 Unblest with art of making cheese?
 Why—but one mode can I discern,
 And that is—send them there to learn.

Dairy management shall be the subject of this Number, for it rarely happens that your milk-houses,

* Of Glenmore Castle in the County of Wicklow; this gentleman is a valuable landlord.

whether large or small, possess all the proper requisites.

A dairy room should be cool in summer, and moderately warm in winter, so as to be throughout the whole year about 45 degrees in temperature. The degree of heat you will prove by an instrument called a thermometer, on which the degrees of heat and cold are marked, on a tube filled with quicksilver, which rises or falls according to the temperature. A northern exposure is the best, and if it can be so situated as to be shaded by trees or buildings from the sun, so much the better; a milk-house should have no inside communication with any other building; it should be kept clear from smoke, well aired, and perfectly clean, and nothing likely to give it a strong or bad smell, such as fish, onions, cheese, should be kept in it.

All the utensils---the pails, hair-cloth sieves (for passing the milk through, to free it from hairs and all impurities,) milk dishes or coolers, tubs, churns, made of *oak* or *lime* wood, which is best of all, *having no acid in it*, and butter prints---should be kept perfectly sweet and clean, scalded, scrubbed, rinsed and dried every time they are used, otherwise they will have a bad smell and spoil the butter. Snuff-takers, sluts and daudles are unfit to be dairy women; and no milker should be suffered to enter the dairy in a dirty apron covered with hairs from the cow-house. In some places cows are curried, combed and brushed; and before milking, their udders and teats are washed clean. Now where clean milk is an object, using a brush and washing is quite as indispensable as it is easy of performance. The *small holder's* wife, who has but one cow, has no excuse for negligence on this point, and yet I have generally seen the poor man's solitary cow much less clean than she ought to be; and as to her milk and butter, kept in a close stinking bed-room---who that had the misfortune to taste, smell, or even look at, the butter

especially, would ever venture to eat it? An out-house, clean, cool and dry, even if it should be but four feet square, is an appendage which the very poorest of you should contrive to have for your milk and butter. The floor, shelves and stools of which should be almost daily washed with hot water, then dried, and aired.

In most places cows are milked but twice a day, but in some of the best managed dairies, where they are abundantly fed, many of them will require to be milked at noon also. But it is said that milk so drawn will be inferior in quality, as twelve hours are required for the due preparation of the milk in the cow; whatever be your times of milking, however, be sure to draw the milk completely off. By the way, the business of milking should be performed very gently, otherwise it becomes a painful operation. Instances occur in which cows will not let down a drop of milk to a harsh, cross-grained milker, who will let it flow in abundance when a mild good-tempered dairy-maid approaches them. For the same reason, when cows are ticklish they should be treated with the most soothing gentleness, and never with harshness or severity; and when the udder is hard and painful, it should be tenderly fomented with luke-warm water, and rubbed gently; by which expedient the cow will be brought into good temper, and will yield her milk without restraint. It sometimes happens that the teats of cows become hurt and sore, and the milk foul; whenever this is the case, such milk should not be mixed with any other, nor even carried into the dairy.

Dr. Anderson gives these maxims with regard to the management of milk :---

1. Of the milk drawn from any cow at one time, that part which comes off at the first is always thinner, and of a worse quality for making butter, than that afterwards obtained; and this richness continues to increase progressively to the last drop that can be drawn from the udder.

2. If milk be put into a dish, and allowed to stand till it throws up cream, the portion of cream rising first to the surface is richer in quality and greater in quantity than that which rises in a second equal portion of time, and so on---the cream progressively declining in quality, and decreasing in quantity, so long as any rises to the surface.

3. Thick milk always throws up a much smaller proportion of the cream which it contains than milk that is thinner, but the cream is of a richer quality; and if water be added to that thick milk, it will afford a considerably greater quantity of cream, and consequently more butter, than it would have done if allowed to remain pure; but its quality at the same time is greatly debased.

4. Milk which is put into a bucket or other proper vessel, and carried to a considerable distance, so as to be greatly agitated, and in part cooled, before it is put into the milk-pans to settle for cream, never throws up so much or so rich cream as if the same milk had been put into the milk-pans directly after it was milked.

From the above facts you will derive many good rules. You will milk the cows near the dairy; you will keep every cow's milk separate till the peculiar properties of each are so well known as to admit of their being classed and mixed together.

When it is intended to make very fine butter, reject the milk of those cows which yield cream of a bad quality, and also keep the first milk separate from the strippings, otherwise the quality will be injured.—For the same purpose take only the cream which is first separated from the *first* drawn milk. Butter immediately after being churned should be thrown into fresh *spring water*, where it should remain for an hour at least that it may grow *firm*, and at the end of the third or fourth washing, some salt should be put into the water, which will raise the colour of the Butter and purge away any milk that may remain

in it, of which, if any be left, a strong smell and unpleasant taste will be the consequence. Butter thus prepared should be *immediately salted*; it is a very injurious practice to keep a making of butter unsalted to the next churning, for the purpose of mixing the two together; this mode injures the flavor of the whole, and renders it of too soft a quality ever afterwards to get firm. When the butter is aired it should be well tramped into the firkin with a round wooded tramp stick of sufficient weight and thickness, the firkin should be filled up to the cross and then covered over with a little of the purest salt, sufficient room being merely left for the head of the cask, which must be well secured to exclude air, and if the floor be damp, let a little unslacked lime be placed under the firkin in order to prevent moisture from being drawn into it. Butter of the very best quality can only be made advantageously in those dairies where cheese is also made, because the inferior milk and cream can be turned into cheese. Why cheese cannot be made in perfection by any of *you*, is what I cannot pretend to account for: but the fact is that the Irish has rarely, if ever, equalled prime English cheese. Mr. Synge, of the County of Wicklow, has, it is true, succeeded admirably in the manufacture of cheeses; but his success was owing to his having, most meritoriously, made the business his study for some time in England, and still more to his having brought home an English dairy-maid accustomed to making the best Gloucestershire cheese. But it grieves me to add, that this young woman, who might have led us all into the true art and mystery of *making cheese* (which is much more profitable than butter,) has been unable to resist the *love-making* of some cheese-eating Englishman, who would have sighed himself into a consumption if she had not gone back to England and married him.

Cream may be kept from three to seven days before it is churned. Where quantity more than quality, is

desired, the whole of the milk is churned, without separating any cream; the milk is kept in the churn or barrel for two or three days till it begins to get sour. When cream alone is churned, it will be fittest for removing in eight or twelve hours.

I shall conclude with Wilkinson's excellent marks, by which every one may soon learn how to choose his cow; which I should have thought about before I gave you a dissertation on her milk and butter, for the same reason that a cook's receipt for dressing a round of beef begins with "first get the beef."

She's long in her face, she's fine in her horn,
She'll quickly get fat without cake or corn;
She's clear in her jaws, full in her chine,
She's heavy in flank, and wide in her loin.

She's broad in her ribs, and long in her rump,
A straight and flat back, with never a hump;
She's wide in her hips, and calm in her eyes,
She's fine in her shoulders, and thin in her thighs.

She's light in her neck, and small in her tail,
She's wide in her breast, and good at the pail
She's fine in her bone, and silky of skin,
She's a grazier's without, and a butcher's within.

No. XXIII.

Regard the labours of the *Bee*
Example meet of industry;
Although he roves through Summer flowers,
'Tis not to waste in play his hours,
But to collect a precious hoard
Of honey, for his winter board;
Your grateful care of him then double,
And he'll reward you for your trouble.

No small holder who has a garden, should be without *bees*; experience has taught us that furze, broom, mustard, beans, clover, heath, fruit trees, &c.

&c. supply the principal food of these wonderful creatures, who, with the mere instinct of their nature to direct them, afford unvarying examples of diligence and labour---of frugality and order---not to be found among *men* who have *reason* to guide, and *religion* to influence their ways.

It is not, however, my purpose to call your attention to the natural history of these animals, to prove that in the formation of their cells, no architect, having in view the construction of a commodious dwelling without loss of space, and the saving of materials, could excel them in ingenuity; nor to exhibit them as a *people* living in communities, of 15 or 20 thousand each, *all working for the public good, without any selfish consideration*, and affectionately attached to their sovereign; but merely to press upon you all, the *advantage* of keeping a few hives under the shelter of your garden hedges. £60,000 was paid last year in England for bee's wax imported from Africa, and probably three times that sum for the same article from Holland, France and Italy. Now what is to prevent the Irish *small-holders* from supplying it—the first cost of a stock or two is trifling—no capital is required—beans, buck-wheat, thyme, burrage, sage, &c. sown in gardens and farm fences would, with the aid of clover either natural or artificial, amply supply them.

Small holders are particularly interested in this matter—because neither capital, nor labour, nor much skill will be necessary to make money by bees, which increase prodigiously; you may construct a bee house capable of containing 108 hives, at small expense: for £3, this house may be built with brick (four inch work,) and thatched with straw; in each of the sides (of which there should be six,) let there be several openings or windows with ledges outside, on which the bees may rest—inside, and opposite these openings, let the bee hives be placed on stands or shelves; in each side there may be placed six hives, and if two

boxes be added to each hive (as it increases) there will be room for 108 hives.—The boxes (which will prevent the cruel system of smothering) are to be twenty inches square by nine in depth, with at the bottom, six openings cut out, about nine inches long and half an inch asunder, just sufficiently wide to allow the bees a free passage in and out. If these boxes be placed under the hive when near swarming, the bees will work down into the box, and in due time fill it with honey—a second box may afterwards be placed, and even a *third* one may sometimes be required.

Autumn is the best season for purchasing stocks, and when buying them you should examine the combs, in order to ascertain the age of the hives; the combs of that season are white, those of the former year of a darkish yellow; where the combs are black, the hives should be rejected altogether. If you cannot obtain hives in Autumn, you may endeavour to purchase them in Spring after the severity of the cold is past. At this season bees *which are in good condition*, will get into the fields early in the morning, return loaded, enter boldly, and will not come out of the hive in bad weather, (for when they do, this indicates that they are in great want of provisions,) they are alert on the least disturbance, and *by the loudness of their humming*, give testimony of their strength.

Summer is an improper time for buying bees, because the heat of the weather softens the wax, and thereby renders the combs liable to break; the honey too, being then thinner than at other times, is more apt to run out of the cells, which, besides the loss of the honey, is attended with the disadvantage of destroying many of the bees. A *first* and *strong* *swarm* may indeed be bought, (no one *gives* a stock *gratuitously*;) and, if leave can be obtained, permitted to stand in the same garden till the Autumn, or else carried away in the night after it has been

hived. When a swarm is too few in number for a hive, another may be added. The method of thus uniting swarms is very easy :---Spread a cloth at night upon the ground close to the hive in which the two swarms are to be lodged ; lay a stick across this cloth ; then fetch the hive with the new swarm, set it over the stick, give a smart stroke on the top of the hive, and all the bees will drop down upon the cloth in a cluster ; this done, throw away the empty hive, take the other from the stool, and set this last over the bees, who will soon ascend into it, mix with those already there, and become one and the same family ; or, set with its mouth upwards, the hive into which the young swarm has been put, and place upon it the other hive. The bees in the lower one, finding themselves turned upside down, will soon ascend into the upper one. A large swarm may weigh 8lbs. and so gradually less to 1 lb. ; a good one will weigh 5 or 6lbs. ; all which weigh less than 4lbs. should be strengthened, by uniting to each of them a smaller swarm, and, if possible, let these swarms be procured on the same day. *Bees* usually begin to swarm in May, but always earlier or later according to the warmth of the season ; they seldom swarm before 10 in the morning, and seldom later than 3 in the afternoon. You may know when they are about to swarm, by clusters of them hanging on the outside of the hives, and by the drones appearing abroad more than usual ; but the most certain sign is, when the bees refrain from flying into the fields, though the season be inviting. Just before they take flight, there is an uncommon silence in the hive ; after this, as soon as one takes wing, they all follow. Before the subsequent swarmings there is a great noise in the hive, which is supposed to be occasioned by a contest, whether the old or the young queen should go out. When the bees of a swarm fly too high, they are made to descend lower by throwing handfuls of sand or dust among them, which they

probably mistake for rain. For the same purpose it is usual to beat on a kettle or frying pan. This practice has probably arisen from observing that *thunder*, or any great noise, prompts such bees as are in the fields to return home. As soon as the swarm is settled, the bees which compose it should be got into a hive as soon as possible, to prevent their taking wing again. If they settle upon a small branch of a tree easy to come at, it may be cut off and laid upon a cloth; the hive being ready immediately to put over them. If the branch cannot be conveniently cut, the bees may be swept off from it into a hive; *lodge but the queen in the hive, and the rest will soon follow her.* If the bees must be much disturbed in order to get them into a hive, the most advisable way is to let them remain in the place where they have pitched till the evening, when there is less danger of their taking wing; if they are observed still to hover about the tree where they first alighted, its branches may be rubbed with rue or alder leaves, or any other herb distasteful to them, in order to prevent their returning to it. We sometimes see a swarm of bees after having left their hive, and even alighted upon a tree, return to their first abode: this never happens but when the young queen did not come forth with them from want of strength, or, perhaps, courage to trust her wings for the first time.

Your fresh hives should be cleaned before using with the utmost care, and afterwards rubbed with fragrant flowers, or with honey.

The feeding of bees should not be deferred until winter or spring. Hives should be examined in September, and if a large hive does not then weigh 30lbs. it will be necessary to allow it half a pound of honey, or the same quantity of soft sugar made into a syrup (*with boiling water,*) for every pound that is deficient of that weight, and in like proportion to smaller hives.

Now, this trifling quantity of sugar, and a few new hives (which you yourselves can easily make,) being the only expense attendant on keeping bees, I am at a loss to know why so few of you, comparatively, possess such a source of profit. If it be desirable to occupy "*a land flowing with milk and honey,*" I see no reason why every humble possessor of an acre of land in Ireland, might not avail himself of the labours of the busy bee, which so far from interfering with his own employment, would work in union with him, and at the end of the year add a considerable item to his profit. An acre of land properly arranged (as recommended in a former number,) for the support of a milch cow or two, with a few garden and hedge row sweets for his bees, *would do wonders* for the small occupier, who, *under his present defective system*, is generally a very poor man indeed.

No. XXIV.

Among the friends of farming art,
 Few rank so high as Sinclair,
 For knowing head and feeling heart,
 What person can with him pair?

He teaches how to make the most
 Of Pat's delicious root,
 Which, simply boiled, or baked, or roast,
 His palate seems to suit.

Sir John by method, new and nice,
 Makes it outlive the year,
 Preserving it in flour or slice—
 You'll read his method here.

Since potatoes constitute the principal part of your support, I shall devote this Number to the abridgement of some of Sir John Sinclair's very important hints "on the culture and uses of potatoes.

Conversion into Meal.—Potatoes, however carefully stored up, have a tendency to sprout in spring, and thus lose a considerable proportion of their nutritive properties. In July and August they become disgusting and nauseous, and quite unfit for food; if the growing crop is resorted to, it produces nothing but soft and green potatoes, which furnish not only a weak, but a very unwholesome diet; besides, by using them before they are ripe, the entire weight of the new crop is greatly lessened. Nothing indeed can be more injurious than to keep potatoes too late, or to consume them too early. Potatoes which in November and December, *when they are most valuable*, sell for 4 and 5 shillings per barrel on an average of seasons, will often bring 7 or 8 shillings per barrel in April, May, and June, when they are intrinsically less valuable; is it not advisable, therefore, to preserve them *when they are cheap and valuable*, rather than to consume them *when they are comparatively dear and worthless*?

In order then to preserve them, the following process is recommended:

As soon as the potatoes are ripe, wash them thoroughly; next pare them or scrape off the skin, which contains a dark coloured substance which is noxious, and take out the eyes in which particles of earth or sand are often imbedded; then cut the potato into slices of about a quarter of an inch thick, so that the water may have free power of purifying; put the slices then into a tub, for extracting the dark coloured substance by repeated washings.* After being thoroughly cleared of that substance, the slices should be put into a sieve or strainer, or on an in-

* On a great scale, barrels should be used with two bottoms, about 5 inches apart; the upper one to keep up the potatoes, but full of holes, so that the discoloured water may pass through them, and thence through a hole at the lower bottom kept plugged, until the noxious matter is completely carried down.

clined plane, so that the water may drain off and then they are in a fit state to be kiln dried, (if possible upon a hair cloth,) or they may be dried in a stove or oven, or upon plates before a kitchen fire, or what would be still better, by *steam*. These dried slices of potato may be preserved for a considerable time in that state, or be ground into meal, which has exactly the taste of pease-meal. The slices and meal sent to New South Wales arrived there in a perfect state; in short, this process preserves the nutritive parts of the potato *for years*.

The flour (or starch) of the potato may be easily separated from the fibre by a grating machine, which you may see at *Mr. John Rudd's, at Enniscorthy* I shall endeavour to explain it—a wooden cylinder, 15 inches in diameter, and 18 inches in length, covered with a tin sheet made rough for grating, is laid on its axis through a hopper, in a small frame of wood—under this frame a tub is placed, into which the potatoes fall through the hopper, after they have been grated. During the process, water must be frequently thrown on the cylinder, in order to disengage it from the potatoes, which (pressed down as they should be by a heavy weight on the top of the hopper,) would, by adhering to it, retard its operation. After the required quantity of potatoes has been thus run through the hopper into the tub, it should be strained into another vessel, in which fresh water is to be poured, and this again is to be changed, until the potatoes cease to give any colour to the water—the flour is then to be taken out, dried, and put by for use. By this plan no part of the potato is lost, the pulp which remains in the strainer being (when boiled) good food for pigs, milch cows, or calves. Three women will wash, peel, grate and strain 24st. of potatoes in twelve hours; the machine will cost only 3s. and being easily carried from house to house, it may be rendered very useful in the families of *small holders*. Sir John Sinclair says, that the skins when boiled, or *even well washed*

without boiling, may be given to pigs, but in all cases, the noxious liquor should be extracted before potatoes are given to any animal.

The jelly made from the potato flour is a remarkably light and nourishing food for the sickly; a trial of it is strongly recommended by Sir John Sinclair to those who are troubled with stomachic or consumptive complaints. He mentions a case in point, that of an Englishman whose stomach was in a very weak state—no food but potato jelly was found light enough for his digestion; he resolved therefore to live *entirely* on it, and persevered in his plan for a whole year, at the end of which time, he was completely recovered. The fact is, that what is bought in the shops as *arrow root* at 3d. per oz. is very often potato starch. The way to use it, is to pour *very gradually* (stirring the mixture at the same time,) half a pint of boiling water on a tea spoon full of the starch---some recommend it to be taken with the broth of veal or of chickens, sweetened with a little honey. But one of the best uses to which it can be applied, is to give it boiled with milk to children brought up *by the spoon* or after they are weaned.

Receipt for making farina bread.---Take one ounce of the farina of potatoes, for every pound of wheaten flour; mix the farina in a bowl or tub, with just as much cold water as will thoroughly moisten it, then gradually pour into it *boiling water* stirring it the whole time until it becomes a *jelly*. It would make the jelly freer, and more easily mixed in the dough, if a small quantity of flour were gradually mingled with the jelly *when boiling*; in this state the jelly may remain until it cools down to the heat at which the water is usually taken to set the sponge. Then mix the jelly in the sponge with the flour and yeast, and treat it afterwards in the usual way of making bread, it will produce a fine fermentation and a light, sweet loaf. Bread with a mixture of potato jelly, keeps longer moist, and toasts much better than other bread.

Receipt for making potato bread.—Pare the pota-

toes—slice them thin—wash them thoroughly—then put them in a can, pouring *boiling water* over them to take out the black liquor or acid; after they have remained in that state for an hour, pour off the water, and put them on the fire until they are brought into a mass or solid body—then add the yeast and a handful of flour, switching the whole together; then lay it into a sponge, make it into dough, and put it into the oven for baking. But bread with boiled or steamed potatoes can only be good for four or five months in the year, while they continue in a wholesome state; whereas made with the jelly of the farina it can be had in equal perfection, at all seasons of the year, and when potatoes are abundant and cheap as at present, the saving in a large family by using one part of potatoes, or of potato flour, with two parts of wheaten flour, is very considerable. There are only two hints more on the subject of potato food, which I shall now press upon your attention—the necessity of always *boiling* potatoes sufficiently when you use them in the usual way; and the importance of *using salt* with them. Working men entertain an idea that it is better to have them only half-boiled, the outside mealy, but the inside hard and under done. They say that a potato thus boiled, *with a bone or stick in it*, stays longer in the stomach than when the potatoes are thoroughly boiled; and so they do—the stomach cannot easily digest them. But this difficulty of digestion should be guarded against, as it becomes an ailment difficult of cure, as many of you well know. *Most of the stomach complaints and windy cholics*, for which such numbers visit the dispensary doctors, have their origin in eating *hard* potatoes, or wet washy ones, for which the potato jelly is such a good substitute.

As to salt, the frequency of *worm attacks*, among your children in particular, is caused by not using it freely. Eat salt abundantly with your potatoes *well boiled*—[OR ROASTED, if you take my advice,] and you will seldom hear either of *indigestion* or of *worms*.

XXV.

One thing there is in which I'm free,
 To own I don't with Pat agree,
Tobacco—held in such esteem,
 A bad and useless weed I deem ;
 And wish that they who hither brought it,
 Had left it or had never sought it.
 I can't conceive how such a passion,
 Could ever have become a fashion.
 The leaf, (should I attempt to chew it,)
 My sickened stomach sore would rue it.
 Once when I ventured upon smoking,
 I narrowly escaped a choking ;
 In *snuff*, it mounts into my head,
 And makes me sneeze till I'm half dead ;
 While drop perpetual downward drips,
 And leaves a stain upon my lips :
 Yet, as *Tobacco will* be sowed,
 I'll shew the Wexford farmer's mode.
 One thing alone there is that's worse,
 That is—*Whiskey*—Ireland's curse.
 A cordial, when discreetly used,
 But soul and body's curse, abused.
 On this, O, legislators lay,
 Your taxes heavy as you may
 Quench mad intoxication's blaze,
 That on our very vitals preys ;
 But give cheap *BEER* unmixed with slops,
 The pure produce of *Malt* and *Hops*,
 Our hearts 'twill cheer, our strength increase,
 Nor hurt our morals or our peace.

Since every body tells me that it is the supposed intention of Government to permit, *under a duty*, the growth of Tobacco in the United Kingdom, I shall, though smoking and snuff-taking, and of course *Tobacco* itself, are objects of my abhorrence, add a chapter to my little volume of 'Hints,' on its culture, because I know that you *will* try it ; and moreover, that unless previously well instructed in the treatment of it from beginning to end, you will fall into

errors, which will be fatal to your hopes, and ruinous to your pockets; out of pure *good-nature*, therefore, I will set you right if I can.

But I must give you my reasons for disliking this 'care-killing' herb; and my objections to an extended cultivation of it in this country. In the first place, my sense of *smelling* is annoyed by its fumes;—my sense of *seeing*, by the spitting and dirtiness occasioned by smoking;—my *taste* is nauseated by chewing it;—and, alas! my *hearing* is woefully affected by Mrs. Doyle's continued grumbling and snubbing at the loss which I last year sustained from having given up three acres of my best land to the planting of Tobacco, which from various causes, has produced little or nothing;—at breakfast, dinner, and supper, aye, and in bed too, where I cannot turn the *bothered side*, this unlucky speculation is brought up; "if you had taken your wife's advice, Mr. Doyle; if you had been contented with potatoes or turnips, or mangel wurzel, you would have saved at least one hundred pounds, and have preserved your character for prudence," with several variations, all to the same tune, are dinned into my *ear*, so that there are *four of my five senses*, (a sufficient majority to satisfy myself at least,) against Tobacco. Besides my understanding informs me, that a desire for it is not *natural* to man. At first use it is sickening to every one; and the plea that it is wholesome, or that it prevents people from being hungry, is a bad one, for though in some instances it may be useful as a medicine, its effect when much indulged in, is to take away the appetite, an undesirable circumstance, I think, for those who have a certainty of breakfast and dinner. It does not *fill* the stomach, but by drawing away the saliva which is necessary for digestion, lessens the craving for food. *Snuff-taking* is also unnatural and unnecessary; cramming dust into the nostrils every ten minutes is absurd and disgusting; it always renders the voice less articulate, and deprives it of its clearness: the only pleasant

sensation which seems to attend it, is that of sneezing; but a confirmed snuff-taker loses this pleasure; besides, the taking of every pinch (as a noble writer once calculated,) with the ceremony of blowing and wiping the nose, occupies a minute and half; a great part of a snuff-taker's life, therefore, will be passed in tickling and wiping his nose, to say nothing of the cost of snuff, and the wear and tear of pocket-handkerchiefs, which decent persons will use instead of their fingers. In truth, the purchase of tobacco and snuff drains a great part of a poor man's income, which would be better laid out in the purchase of milk or bread for himself or his children; and farther as a *farmer*, I have strong objections to the growing of tobacco in Ireland.

I. While it requires the whole or principal part of the farm-yard manure, it does not make any return to it again; it does not, like almost every other vegetable, contribute to its own nourishment by generating dung.

II. In proportion to the extension of its culture, those *green crops*, which are necessary to the support of man and beast, and so essential to good husbandry, must be diminished.

III. Because it requires more than a just share of the time and attention of a farmer's family, which ought to be more equally bestowed on the varied objects of his care,—a good farmer never complaining that he has nothing to do,—he and his people being always engaged at something, which would be neglected, if Tobacco, to much extent, were to have a place in his ground.

IV. Because in this climate it is a most uncertain crop, (witness last year's produce in the county of Wexford,) and likely to be far inferior on an average of years, to that which is imported from America; or to what may be grown in many parts of England.

V. Because the profit which during the last few years *has* been, in some places, realized by tobacco,

during the absence of duty, and with a comparatively trifling extent of culture, cannot possibly be made in *future* with a duty, operating against the grower, and an extending culture increasing the supply

Suppose a produce of 15 cwt. to the acre, (more has, I believe, in some instances, been obtained,) which is a noble crop and rarely to be expected, and this to sell at 1s. 6d. per lb. or £8 8s. per cwt. (much higher than the average price by the way,) you have a gross receipt of £126, deducting from this the odd £26 for expenses, there remains £100 for the crop; this is prodigious, and this and *more* than this, *has* been cleared,—BUT if a duty of 1s. per lb. two thirds of the selling price, be laid on, the remainder will be reduced to £33 6s. 8d.; and you cannot on an average of years, expect above *half* this crop.—Now, if you add to this consideration, the certainty of having two acres of potatoes; from the quantity of manure required for one acre of tobacco, which may be greatly injured by an unpropitious season, and the secondary advantages arising from potatoes if given to cattle, the result will be in favour of potatoes; or suppose you sow *mangel wurzel* or Swedish turnips, on an acre sufficiently prepared and manured to tobacco, (I am supposing a *duty* all this time on the latter,) from which you would have forty or fifty tons weight, would not this be incomparably better to a farmer possessing stock to be fattened? You are also to place the value of the dung arising from the application of mangel wurzel to cattle feeding, into the scale, and if this does not completely *turn* it against tobacco, I am no longer Martin Doyle. If it be ascertained in good time, that the now expected duty will not come into operation before the next crop shall have come to market, or that its amount be much less than I have supposed, you have my leave, under the *suitable circumstances*, which I shall yet mention, to give up *some* portion of your land and manure to tobacco.

The pleasing consideration of employment afforded to women and children, will be quite sufficient to overbalance in my mind, any regret which I might otherwise feel for the disappointment which you may experience on the score of profit.

My already expressed dislike to smoking and snuff taking, combined with my individual loss, may, perhaps, be supposed in some degree, to have blinded my judgment in the present matter; this I will not acknowledge to be the case. My opinion has been formed from a very dispassionate consideration of the subject in all its bearings. Yet that I detest smoking is most true; so much so, that if Mrs. Doyle were to put a pipe into her mouth——— Having hinted thus far, and given fair notice and warning, I shall conclude with the necessary directions for raising this abominable plant.

In the middle of March let some fresh dung, from the stable and cow-house, in the ratio of four of the former to one of the latter, be well tossed up together; * after an interval of a week let this mixed dung be again shaken and laid in a bed as if for cucumbers, to the height of three feet, which will allow sufficiently for its subsequent sinking; when this is done place boards on the sides of this bed, secured together like a cucumber frame, the top of which you can cover with cheap calico tacked to a light frame or frames, moveable at pleasure either to exclude frost or to regulate the temperature of the bed, the heat of which, if necessary, can be renewed by cutting off the portion which projects beyond the frame and supplying its room with fresh dung, (gardeners term this process *lining*) which will communicate the desired warmth. Three quarters of an

* This management keeps up the heat for a longer time than if unmixed stable dung were thrown at once into a bed from the stable; such dung by its sudden and violent heat would probably destroy the seed or scorch the young plants; this heat would also depart as suddenly as it came on.

ounce of seed will be more than sufficient for an early bed of this kind, supposing it to contain forty superficial feet, and a smaller quantity will answer for later beds, of which you must have several if you plant extensively. After the first great heat has subsided, which will occur in about four days, cover the dung with dry and well screened earth three or four inches in depth, and on this, in about two or three days more, if no *scorching* heat continues, sow the seed of the *black* or *Negroland* species, carefully and lightly covering it with screened wood or coal ashes, mixed with one third of rich earth, less than half an inch in thickness. Your later beds, (according however to the state of the weather) should be more exposed and colder than the very early ones; and from *all* you will have occasion to prick out into warm and *richly* manured garden borders, a large portion of the most forward plants when the *fourth* leaf has *sprouted* and the *fifth* is *ready to sprout*, as a necessary means of ensuring a timely supply for the field, and of giving vigour and *elbow-room* to the rest, so that they may throw out their side leaves freely. An Irish acre will take 18,000 plants, but from a bed of forty superficial feet you cannot draw, at one time, fit for the *field*, more than about 2,000 plants, and you must wait ten days before you can call on it again, so that you will see, if you have much land to plant, and wish to get in your plants in proper season, the indispensable necessity of successive hot-beds and extensive pricking out; great attention in these stages of the plant is *necessary* to guard against snails and slugs. The next points for consideration, are the *description of soils* in which the plants are to be set, the *kind of manure* required, and the *mode* of planting out.

The *soil* should be rich and dry with a sound warm bottom, free from springs and all under water; * al-

* Land enriched by the flooding of rivers.

luvial land containing a portion of sand, is, perhaps, the very best for tobacco. The field should be well prepared during the preceding winter by repeated ploughings, digging, or *trenching* if on a small scale, and be WELL SHELTERED, with a good aspect. The manure should be a compost, three parts of it rich dung and one part good earth or road scrapings, well pulverized and blended together. The dung of cities, even at a very high price, is far preferable to any farm yard manure. In the immediate neighbourhood of Dublin and other large cities, therefore, tobacco may be grown with much comparative advantage. If there be a deficiency in either the quantity or the *quality* of the manure, sow potatoes or turnips which may grow luxuriantly where tobacco would, unquestionably, fail. The time and manner of planting out, are as follows:—early in May, and not later than June, form your drills as if for potatoes, *but shallow*, thirty inches apart, and at distances of eighteen inches set the plants, previously depositing for each a very large shovel full of the compost, in which the plants are to stand, draw back with hoes and settle evenly the earth in the line of plants which was displaced by the plough, thus leaving furrows between the rows, to keep the roots dry; water the plants *as they are put down*, and if the weather be dry (and planting in dry weather is essential to the success of the crop) water once or twice more, if the plants appear to droop.

A covering during the scorching heat of the sun, with cabbage leaves, by day, will be found useful. If the weather is temperate no covering will be necessary. The subsequent care of the growing plants consists in relieving them from slugs and weeds, tightening them when shaken by the wind, lightly earthing them as the stem advances and keeping the soil loose by constantly stirring it with a hoe in the intervals, but not so as to touch the roots; with every care, however, several of the plants may fail

from various casualties;* to supply their places, therefore, the seedling beds should be attended to after the field plants are pretty well grown, it will be necessary to *top* them, that is to take off the growing flower bed as soon as they form in any degree, in order to strengthen the plants and to prevent them from stringing and running to seed, the *topping* is best performed by the fore finger and thumb, as their grasp closes the pores which if cut with a knife or scissors would be left open—after this operation little sprouts will continually shoot out; these must be carefully pulled off, and when saved they will sell for probably as much as will pay the expense of taking them off; the plant is ripe when the leaves become wrinkled and mottled with yellow spots in the *raised* parts, while the cavities continue green, and when they exhibit a black streak along what I shall call the *spine* or *back-bone* of the leaf; the leaves should be taken off (choosing, if possible, dry weather,) by women and children as fast as they ripen, (*if frost appears let them be all cut down at once ripe or unripe and removed to sheds*†) and exposed for a day to the sun, which renders them flexible and pliant. If the weather be wet, they must be at once removed to cover, and in all cases laid in little heaps for twenty-four hours until they begin to ferment a little, when they must be moved. Women and children are then to be employed in stringing the leaves on twine, (which can be homespun from hemp) according to their size, previously to their being hung up in sheds or rooms well ventilated—a free current of air in a damp climate like this, being necessary to prevent mildew and

* Wherever the *wire* worm is found to infest the ground, the loss will be incalculably great, whole fields of young plants were last year destroyed by them. In wet seasons they are most mischievous.

† An injurious frost is, however, hardly to be apprehended before the 10th October, long before which time the chief part of the crops ought to be secured.

rotteness; where covered places cannot be had, the strung leaves are hung in the open air from branches of trees, or poles horizontally fixed to upright posts, the poles being five or six feet asunder; from nails driven into these poles the strung leaves called *hanks* are hung, (and in this early stage rain will not injure them,) until the stem of the leaf has considerably shrunk, and the leaf itself become brown and tough, and reduced in weight. When sufficiently dry, the hanks are to be doubled and redoubled until each forms a flat fold of six or eight inches in breadth, (the stalks all inclining one way) and then neatly and evenly laid and pressed on one another, to the breadth of from four to six of the folded hanks, taking care that the *stalks* of the *outward* row shall be placed inward to ensure their due reduction by the fermentation; in circular heaps for a small quantity, in oblong heaps of from three to eight cwt. and covered with half made soft hay, in depth from twelve to eighteen inches, over which cloths are to be laid and secured down tightly to the floor with weights, to keep in the heat. After lying in this state for four, five, or sometimes eight days, according to the quantity in heap, the state of the weather, the materials and weight of them with which the heap is covered, &c. &c. they are to be taken up, and if they are sufficiently sweated (which if the operation is well done, will be the case in one fermentation) the hanks are to be hung up (in *close* houses if possible) five or six inches asunder *perpendicularly* from nails driven into the rafters, collar braces, or from ropes drawn across the ceiling, and brought near each other: this mode of suspension will not take up one third of the room that would be required if they were stretched, as in the first process, *horizontally* from rafter to rafter, or pole to pole. A second sweat, if the first be rightly done, is a waste of weight without improvement, but in taking the heap out of sweat some hanks will be found to have par-

tially escaped the fermentation, exhibiting a mottled greenish instead of a fine dark brown colour; these must be hung apart from the rest and added to the next batch for heating. Tobacco is often hung out of the sweat in the open air, it is * here that the great waste of volatile oil takes place, which is best preserved by confined perpendicular suspension in a tolerably close house.

In damp weather, however, some air should be admitted, and the suspended hanks shaken by taking hold of the lower ends, (the upper being on the nails) and in that position swinging them round, which gives a revolution to the leaves upon the twine, removes mold and prevents them from sticking together, the hank may be also reversed, the lower loop being hung up in place of the upper. The last act is that of tying the *hanks* into *hands* (and if dry enough to be secure against fermentation) pressing them in sacks or tubs, to preserve the full weight until they are sold to the manufacturer.

*Note. It has been recommended to hang up the leaves, when *first* pulled in close rooms, to preserve this oil; but, in our damp climate, such a process would be often fatal.

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